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PRACTICAL REMARKS

ON THE

HYDROCELE

OR

WATRY RUPTURE,

AND

Some other Diseases of the TESTICLE,  
it's COATS, and VESSELS;

(Illustrated with Cases;)

Being a SUPPLEMENT to a general TREATISE ON  
RUPTURES, published in the Year MDCCLVI.

---

By PERCIVALL POTT,  
SENIOR SURGEON to St. Bartholomew's Hospital.

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Cujus rei non est certa notitia, ejus opinio certum reperire  
remedium non potest.

Verumque est, ad ipsam curandi rationem nihil plus con-  
ferre quam Experimentum.

A. C. CELSUS.



L O N D O N :

Printed for C. HITCH and L. HAWES, in *Pater-*  
*noster-Row.* MDCCLXII.

HYDROCELE

C.R.

WEAVER R. B. T. U. R. E.

(Arch. Div. - Bonfield)

BY PERCIVAL POTTS

Senior Counsel to the President

2. Anzahl der C. H. in der Gruppe in Prozent

1-17-68 - 1-18-68

T O

*Peter Sainthill, Esq;*

DEAR SIR,

SOME time ago I gave you the trouble of looking over the following sheets in manuscript, with which you said you was much pleased.

The approbation of so good a judge has emboldned me to print them, and I do not know a more proper person to whom to address them.

The rank you have long and deservedly borne in the profession, and the character you have always maintained in it as an honest man, as a judicious and fair practitioner, give you a just claim to the regard of all its members.

I

By

iv DEDICATION.

By this address I mean to express my sense of your merit, and my estimation of your friendship; but lest what I intend as a civility should become offensive, I will not add any thing which tho' strictly true might have the appearance of flattery, nor make a needless recital of those good Qualities which you are so well known to possess.

I heartily wish you continuance of health, and am,

DEAR SIR,

*Your most obedient Servant,*

Watling-Street,  
2 Feb. 1762.

Percivall Pott.

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*THE following tract as the title expresses, is designed as a supplement to one published a few years ago; one of the objections to which was, that it was defective in matter; and ought to have comprehended the false herniæ, they being as real diseases, and requiring Chirurgical assistance as much as the true.*

*This deficiency I have now endeavoured to supply in the best manner I am able.*

*When I began to put these papers in order, I did not think they would have run to such a length; and when they were finished, I did not know how to shorten them without rendering them less explicit.*



*I am*

*I am perfectly sensible that some parts of them will appear prolix and diffuse, and that such manner of writing is in general very justly objected to, but yet cannot help thinking that sometimes it may be excusable, or even necessary.*

*When application is made to the judgment merely, and information is intended to be conveyed to many people of different capacities, it may become necessary to set the same object in several different lights, and to repeat the same thoughts many times in different words : to those who have not been much conversant with the thing treated of, a studied brevity would become a perplexing obscurity ; however satisfied such readers might be with the stile of the writer, they would not be made sufficiently acquainted with the subject ; they might be pleased, but they would not be informed.*

*I should*

*I should indeed be very sorry to have conveyed my meaning in such manner as to disgust the judicious, but as my principal intention was to instruct the unknowing, my chief aim has been perspicuity : if the learned and critical are not displeased I shall be glad, if the ignorant gain any knowledge I shall be much more so : the character of an elegant writer I make no pretension to, that of a skilful surgeon and of a man who has done some good in the way of his profession, I should be extremely glad to deserve.*

P R A C-

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P R A C -

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PRACTICAL REMARKS  
ON THE  
HYDROCELE, &c.

S E C T.



**T**HE various diseases comprehended under the general term Hernia, have by surgeons been divided into two classes; one of which they have distinguished by the epithet of true, the other of false or spurious.

Under the first they range all those tumors which are produced either by the descent, or protrusion of some of those parts which should naturally be contained within the cavity of the abdomen; but which by being displaced from their proper situation form swellings in the groin, scrotum, belly, thigh, navel, &c.

B

By

## 2 PRACTICAL REMARKS *on*

By the second they mean all diseases of the testicles, their coats and vessels; whether proceeding from the induration and enlargement, or other affection of the parts themselves, or from the lodgment, or accumulation of extravasated fluid within them.

So that what are called true herniæ, are diseases occasioned by the removal of certain parts from their natural situation, within one of the cavities of the body; and those termed false, are original disorders of the parts themselves in which they are seated.

A part of the intestinal canal, or of the omentum, stomach, uterus, or bladder, are what most frequently make the contents of the former; a varicous distention of the spermatic vessels, extravasated blood or water within the membranes of the testicle, or of the spermatic chord, an inflammatory enlargement, and a schirrous or cancerous state of the testis itself, constitute the latter.

The true Herniæ receive their distinguishing appellations either from the particular part of the body in which the tumor makes its appearance, or from what is contained within it, and are therefore called

*the* HYDROCELE, &c. 3

called inguinal, scrotal, umbilical and ventral; or intestinal, and omental ruptures.

The spurious derive their names either from their supposed contents, as the pneumatocele, hæmatocele, and hydrocele; or from the alteration made by the disease in the natural structure of the parts concerned, as the varicocele, circocele, and sarcoccele; to which some have added that inflammatory defluxion of the testicle, commonly called hernia humoralis.

The pneumatocele or wind-rupture, is a mistake, there is no tumor of this kind, and in this situation, in a living subject; it is indeed particularly described by many writers both antient and modern, and said to be a disease to which infants are very liable; but the complaint so described, and which nurses and ignorant people still call a wind-rupture, is not what they take it for, neither is it produced by wind: it is either a true intestinal hernia, or a species of hydrocele, which will be taken notice of hereafter.

The varicocele, which is an enlargement and distention of the blood vessels of the scrotum, is very seldom an original disease independent of any other; and when it is, is hardly an object of surgery.

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The circocoele, or varicous state of the spermatic vein, tho' it is really a disease, and sometimes very troublesome to those afflicted with it, yet is seldom capable of much relief beyond that of a suspensory bandage.

S E C T. II.

*Of the HYDROCELE in general.*

THE term hydrocele, if used in a literal sense, means any tumor produced by water; but surgeons have always confined it to those which possess either the membranes of the scrotum, or the coats of the testicle and its vessels.

The first of these, viz. That which has its seat in the membranes of the scrotum, is common to the whole bag, and to all the cellular substance which loosely envelopes both the testes; it is strictly speaking, only a symptom of a disease, in which the whole habit is more or less concerned, and very seldom affects this part only.

The latter, or those which occupy the coats which immediately invest the testicle, and its vessels, are absolutely local, very seldom affect the common membrane of the  
scrotum,

scrotum, generally attack one side only, and are frequently found in persons who are free from all other complaint.

Notwithstanding the obvious and material difference between the two kinds of disease, they have by the majority of writers been confounded together, and considered as springing from the same source, and requiring the same kind of treatment; tho' one is plainly and evidently a symptom or attendant only of a general disorder, and the other is strictly and absolutely local.

This one fundamental error has been the occasion of many others. The supposition that all collections of water found in the membranes, or coats of the scrotum and testicles, are of the same general kind, has produced an infinite variety of wild conjectures concerning the particular and immediate nature, and origin of them.

By some they have been attributed to an indisposition of the liver, kidneys, and spleen; by others to a natural connection between the emulgent and spermatic vessels, and therefore said to be always found on one side.

By many the fluid has been thought to be of the urinary kind, or at least that it ought to have passed thro' the kidney, but

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mistaking its way, gets into the membranes of the scrotum<sup>a</sup> and testicles; while others have affirmed that all complaints of this kind are really symptoms of a dropical habit,<sup>b</sup> that the water originally comes from

<sup>a</sup> Supervenit quandoque ex causa aliqua externa et manifesta ut ictu, casu, &c. crebro vero ex latente et non manifesta; quæ ab externa causa accessit, aut dextrum aut sinistrum renem indifferenter affligit; a latente vero et non manifesta causa originem ducens nunquam alium quam sinistrum. Schenkus.

Rene hoc male affecto nec officio suo probe fungente urinæ pars quam emulgens hæc ad se pertraxit, cum ad vesicam per male affectum renem non potest descendere per feminalem in Erythroideam delabitur, hoc modo hydrocele ingenerans. Hinc apparet et abunde manifestum est quamobrem hydrocele haud ab externa sed a latente originem ducens, non nisi in sinistram membranam incidat et hujus testem affligat. Schenkus.

Hernia aquosa si a causa interna et latente originem ducit, ut plurimum sinistram partem scroti occupat, serosusque ille humor in membrana testem involvente erythroiden dicta colligitur, idque fit præcipue rene sinistro male affecto, quapropter serosos humores non attrahens et ad vesicam non mittens per venam seminariam quæ in isto latere ex emulgente præcedit in membranam erythroiden delabitur.

Fab. Hildanus.

Ne serosus humor qui a rene attrahi non potest, in abdomine retineatur. Hildanus.

Si hernia fiat ex humoribus venientibus a renibus ad testiculum, cognoscitur tactu. Lancfranc.

<sup>b</sup> Colligitur liquor in hypochondriis qui facile descendit. Fab. ab Aquapend.

Aliquando descendit aqua illuc sicut descendit in hydro-picis. Lancfranc.

from the cavity of the belly, and \* either passes thro' the peritoneum, or extends that membrane down into the scrotum.

Many cautions have been given against attempting the cure of one species of the disease hastily, or without a previous course of medicine, upon supposition that the defluxion is of a noxious kind, and by falling on this part frees the constitution<sup>c</sup> from several other diseases. It has been described as frequently<sup>d</sup> producing a corrupted, or otherwise diseased testicle; as being nearly allied in nature to those tumours which are called encysted, whose tunics are formed

B 4 out

\* See Cheffelden's Anatomy.

<sup>c</sup> Sæpe ego vidi multos per hernias liberatos esse a gravibus affectibus, ab empyemate, hydrope pulmonis, &c. unde si penitus sanetur poterit multos morbos postea inferre.

Fallopious.

<sup>d</sup> Testis autem substantia ab acrimonia humoris successu temporis corrumpitur.

Schenkious.

Sciendum est quod in hernia illa in qua continetur aqua in vagina testis, et quæ aliquantisper sit diuturna corruptus est testis.

Fallopious.

Ubi paulo diutius humor iste intus relinquitur metuedum est ne testiculus sensim cum eodem corrumpatur, vel occalescat, atque ita schirrum vel farcocelen, vel cancrum tandem sentiat.

Heister.

Ne scilicet collectum in scroto serum per acredinem paulatim contractam partes internas et cum primis testiculum corrumpat et noxam magis periculosam efficiet.

Heister.

Notandum vero aquam in scroto non esse diu relinquendam ne a mora testis corrumpatur, vel una cum aqua adveniat hernia carnosæ et caro concreseat.

Fab. ab Aquapend.

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out of the common membrane by mere pressure; and as being generally accompanied with a true hernia, or a descent of a portion of intestine or omentum, which supposed circumstance has been urged as a reason for not attempting a radical cure<sup>e</sup>.

The same wanton liberty has been taken in assigning different seats to these disorders, as in accounting for their origin: every part which invests or accompanies the spermatic vessels or testicles, not only the tunica communis of the process, and the

<sup>e</sup> The truth of all these assertions might be proved by many quotations from authors who have long been deemed great authorities, from Fabritius ab Aquapendente, Fallopius, Gulielmus e Saliceto, Lancfranc, Theodoric, Brunus, Guido de Cauliaco, Fabritius Hildanus, Schenckius, Peter Lowe, Serjeant Wiseman, Dr. Turner, Mr. Chesselden, and others; but as their books are in every body's hands citations are needless.

The opinion of Mr. Chesselden on this subject is indeed so singular, and so contrary to truth and nature, that I shall take the liberty to repeat his words, lest his great, and in general deserved character, should mislead the unwary.

In the very last edition of his anatomy, p. 264. he says, — "The true hernia aquosa is from the abdomen, which either extends the peritoneum into the scrotum, or breaks it, and then forms a new membrane, which thickens as it extends, as in aneurisms and atheromatous tumors: the dropsy in the cyst, for such it properly is, rarely admits of more than a palliative cure by puncture or tapping, like the dropsy of the abdomen; and this with some difficulty, because the omentum generally, and sometimes the gut descends with it."

the cavity of the tunica vaginalis, (the real seats of one or other of these diseases) have been enumerated, but several imaginary ones have been added; firm hard membranes have been split into lamellæ, and cysts and coats have been devised which never had any real existence.

In consequence of these strange illfounded opinions of the nature, origin, and seats of these diseases, as strange and absurd methods of cure have been proposed and practised.

Strong purges and powerfully diuretic medicines, have been prescribed to carry off the water from the general habit, in cases where the disease has been perfectly local.

Actual cauteries used, and ligatures and incisions made on the groin and spermatic process, to hinder the future descent of water from the belly<sup>f</sup>. Injections of astringent

<sup>f</sup> Et cum totam evacuaveris aquam, cauteriza locum quem aperuisti; et fac duo cauteria punctualia in inguine, ex utraque partem unum supra didymum; quod si non cauterizes aqua iterum redit. Sed cauteria redire materiam iterum non permittunt. Lancfranc.

Et iterum redit nisi cauterizetur post perforationem. Brunus.

— In apertione duplex est intentio, scilicet aperire et prohibere ne aqua rursus descendat. Aquapendent.

— Avicennas utitur ferramentis candentibus in regione inguinis ut corrugatur pars, ne aqua posset descendere. Aquapen.

Sin autem in rene vitium non fuerit, et defluxum plane impedire volueris, incisionem superiori parte scroti prope inguina

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gent liquors, and of ardent spirits thrown in with a view to closing broken lymphatics. Tedious and painful operations have been practised for the eradication of imaginary cysts. Directions given to evacuate the water at different times, lest the patient's strength should fail, or his health suffer from its being done too suddenly. And the testicles being supposed to be most frequently spoiled by long laying in the water, castration has often been performed, even in the simple hydrocele §.

All this while both writers and practitioners lazily and servilely copying each other, the marks or symptoms by which the

*inguina fieri expedit; quandoquidem duplex chirurgus est scopus prior evacuare serosum humorem, posterior prohibere ne de novo aqua in scrotum defluat.*

Hildanus.

*Et quia tota aqua in tunica illa (nempe vaginali) continebatur, ita ut testiculus ei innataret, ne in posterum denuo descenderet aqua acu incurvato ac filo reduplicato, universam hanc tunicam (præter vasa seminalia) apprehendi et mediocriter constrinxi atque ligavi.*

Hildanus

§ I wish I could say that this observation related to past times only, but am afraid that instances in our own are not wanting, where the testicle being supposed to be diseased, tho' really not so, has been unnecessarily taken away.

See Gouch's Cases.

Indeed in this and many other parts of surgery it is of infinite importance for an operator to be perfectly well acquainted with the natural figure, complexion, &c. of the parts in a living subject, lest he unnecessarily cut off those which are sound, or leave what ought to be removed by being diseased.

## *the* HYDROCELE, &c. 11

the several different disorders passing under the same general appellation might be distinguished, not being clearly laid down, neither the nature, precise situation, nor most proper method of attempting the relief of any of them, was rightly understood by the majority of those who must daily be called to the care of them.

Dr. Monro the father, who is professor of anatomy at Edinburgh, and Mr. Samuel Sharp, late surgeon to Guy's Hospital, are the first, and almost the only writers, who have sensibly and rationally explained the true theory and nature of these diseases; to them the profession is greatly obliged, as they have thrown much light on this subject, and assisted their readers in obtaining more true and just ideas than any other authors whatever.

### S E C T. III.

**S**OME degree of knowledge of the structure, disposition, and connections of the parts concerned, is absolutely necessary toward the right understanding of the true nature of any disease; and an anatomical description of such parts ought always to be prefixed to every account of  
one:

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one : this I shall endeavour to give in as succinct a manner as I can, intending only to furnish the reader with such a general idea, as may serve to account for the most frequent symptoms and appearances of the disorders in question, and elucidate the surgical practice ; not to enter into a minute detail, or engage in any of the disputes which have arisen on this subject.

The spermatic vessels like most of the contents of the abdomen, lye behind the peritoneum, enveloped in the common tela cellulosa, or what used to be called the cellular appendix of that membrane ; the arteries which are two, arise from the trunk of the aorta, in the mid-way between the emulgent and lower mesenteric. At their origin they are very small, and contrary to all the other arteries in the body they seem rather to increase in diameter as they descend. In their passage downward they impart several branches to the cellular membrane which invests them, and before they arrive at the testicle they are divided into four or five principal ; one of these goes to the epididymis, the others to the body of the testis : the latter having pierced the tunica albuginea, and being convoluted in

in the most wonderful manner, compose the greatest part of the body of that gland.

From these convolutions of the spermatic artery the semen is secreted, and after secretion, is received by those particular vessels which late anatomists have agreed to call the vasa efferentia; these vary in their number in different subjects, being from 10 to 15 more or less: when collected together they form what is called the globus major, or larger extremity of that body which from its situation is called the epididymis. They then unite into one single tube, which being convoluted and contorted in the most miraculous manner, constitutes the rest of that same body; so that the whole of the epididymis, except that part of it which is formed by the concurrence of the vasa efferentia, does really consist of one single tube, whose diameter is said in no part to exceed the 80th of an inch, but which is contorted some thousands of times, and if unravelled and drawn out, is some yards in length.

From the lesser extremity of the epididymis proceeds the vas deferens, or that canal thro' which the semen is conveyed from the testicles towards the penis; or in other words, when this wonderful tube

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ceases to be contorted, and puts on the appearance of one single smooth vessel, it is then called the vas deferens.

This rises from the lesser end of the epididymis, enveloped in the same common tela cellulosa in which the spermatic artery and vein are invested; and when it is got just above the edge of the os pubis, separates from them, and passing down behind the peritoneum proceeds to the inferior part of the neck of the bladder, where it deposits the semen in the receptacles appointed for that purpose, called vesiculæ feminales.

The blood, after the feminal secretion is performed, is returned back into the general mass by the spermatic vein, which on the right side empties itself into the vena cava, and on the left into the emulgent vein.

While the spermatic vessels are within the cavity of the belly, the cellular membrane in which they are enveloped is much more lax, its cells larger, and its texture more tender, than on the outside of the same cavity<sup>h</sup>; as they pass under the transversalis,

<sup>h</sup> The passage of this chord, or of the spermatic vessels under two of the muscles and through the third, is a circumstance of much importance; and what every one ought to be well acquainted with. The common doctrine is, that  
in

versalis, and obliquus internus, and thro' the obliquus externus, they receive a considerable addition of cellular substance from the adjacent parts, and when they have passed thro' the tendinous aperture of the last-named muscle, they, together with their cellular tunic, are covered by and enveloped in that expansion of muscular fibres called the cremaster.

The membrane surrounding all that part of the spermatic chord which is on the outside of the abdomen, is called the tunica communis, or tunica vaginalis of the chord,

in each of the oblique muscles of the abdomen and in the transversalis, is a tendinous perforation for the passage of the spermatic vessels, and these supposed openings are called the rings. This is a mistake which even some very modern writers in anatomy and surgery have fallen into, and lest their words should not convey an idea sufficiently erroneous, some of them have given us prints of all these openings in regular gradation above and behind each other. Nothing can be more false than such representation; the spermatic vessels do never pass thro', but always under the transversalis and obliquus internus, at such distance as never to be affected by their action, or to suffer any stricture or strangulation from them; on the contrary, the spermatic chord always passes thro' an opening made for that purpose in the tendon of the obliquus externus, is liable to be affected by its actions, and when accompanied by a portion of intestine or omentum, it is this tendinous aperture which makes the stricture and produces the symptoms and the hazard. — A circumstance of great consequence for every one to be informed of who would rightly understand the nature of a true hernia, and of still greater to him who may be called on to operate upon it.

chord, and is as has already been said, a mere cellular membrane, totally void of all other cavity except those of its cells, firmly adhering to the surface of the spermatic vessels in every part, and plentifully furnished with lymphatics.

It is of very great importance to have a true idea of the structure of this part of the funiculus spermaticus ; the old term tunica vaginalis conveyed a very false one : it implied that the spermatic vessels were contained within it as in a sheath, and that if those vessels were not there, this coat would form an empty bag consisting of one single cavity<sup>i</sup>.

This is one great source from whence many of the errors which have been committed in the description of diseases whose seat either is, or is supposed to be in this part,

<sup>i</sup> Even de la Faye, whose notes on Dionis have rendered the works of the latter much more valuable as well as useful, has fallen into the common mistake with regard to this tunica, by supposing it and the tunica vaginalis to be both formed out of the same membrane, and allotting a cavity to the former. “ Il faut remarquer que la tunique vaginale, et la gaine du cordon spermatique sont une continuation du tissu cellulaire du péritoine, qui s’allonge pour envelopper le cordon, et qui s’élargit pour envelopper testicule ; a l’endroit ou cette continuation s’élargit la nature a formé une cloison qui empêche la communication qui se trouveroit entre l’intérieur de la gaine du cordon spermatique et celui de la tunique vaginale.”

De la Faye,

part, have sprung; and therefore I take the liberty of repeating, that it has no one particular cavity, but is mere cellular membrane, and that it terminates in great measure just above the epididymis, tho' it may be traced on the surface of the tunica vaginalis testis.

The coats of the testicle are only two, viz. the tunica vaginalis, or that bag which loosely invests it without any adhesion to it except in one particular part, and the tunica albuginea, or that membrane which is the immediate and proper covering of its vascular structure.

In order to obtain a clear and true idea of these coats, we must examine them in a foetus, in a new born infant, and in an adult.

The testicles of the human species are always formed within the cavity of the belly, and remain there until, or very near unto the time of birth.

While they are within that cavity they are covered by one coat only, which firmly adheres to the vascular structure of them; and is evidently derived from the peritoneum, in the same manner as the outer coat of most of the viscera of the abdomen.

Their situation during the first months, is rather higher than in the latter; as the

C

foetus

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fœtus increases in size they fall gradually lower.

Within the cavity of the abdomen, on each side a little below the testicles, is a small opening or orifice leading into a small but firm membranous bag ; the upper part or neck of which passes thro' the apertures in the tendons of the external oblique muscles, while the lower part or sacculus lies enveloped in the common cellular membrane on the outside of those muscles, in the groins.

These orifices are always open until birth, and most frequently some while after ; during all which time the sacculi have free and open communication with the inside of the belly.

By means of these orifices the testicles pass from the abdomen, through the tendinous apertures into the sacculi in the groin ; but the time at which they do this is not certain : sometimes it is just before birth, sometimes just after, sometimes they get into the scrotum immediately, sometimes they remain a considerable time in the groins, and sometimes they never pass through the opening in the muscle at all, but remain for ever within the belly. These are a kind of *lusus naturæ*, but in  
the

the ordinary course they very soon pass from the groins into the scrotal bag, the communication with the belly remaining open some little time longer.

When the testicles are got fairly down into the sacculi, if the latter is laid open it will appear that the former is loosely enveloped by it, in such a manner as to be perfectly free from all cohesion, except in one particular small part of it, where this bag and the proper coat of the testicle are so firmly united, as to appear to be plainly a continuation of one and the same membrane.

And while the communication with the belly remains free, if the sacculi be laid open from the bottom upward, it will appear in the most conspicuous manner, that the membrane which constitutes them is a continuation or process of that part of the peritoneum which lines the muscles of the abdomen.

Some time after birth the necks of these sacculi become close and impervious; by which means all communication between their cavity and that of the belly, is totally cut off: the time when this happens is various and uncertain; I have seen them perfectly close at the end of sixteen days, and have found it open on one side and shut

on the other at the end of two months; though for the most part the communication ceases in less time.

It sometimes happens that while these passages are open, a piece of intestine or omentum having insinuated itself into one of them prevents its contraction, and produces a congenial rupture, a disease much more frequent than it is thought to be; and in others it also sometimes happens, that the spermatic vessels not being sufficiently elongated, the testicles never get below the groin, and the communication with the belly always remains open, tho' it does not always receive a portion of gut or caul.

When these orifices are once closed, there never is any future communication between the cavities of the sacculi and that of the abdomen; nor can any thing either solid or fluid, however small in size or quantity, ever after this period pass from the one to the other. The bags now closed at their upper part loosely invest the testicles with their epididymes, their cavities being kept moist by a fine fluid constantly exhaled from capillary arteries, and as constantly absorbed by vessels appointed for that purpose; which fluid, while these parts enjoy

a sound healthy state, is small in quantity, no more than just serves to lubricate the surface of both membranes, and prevent any cohesion between them.

From these premises the following inferences, serving to point out the true nature and seat of some of the diseases in question may be deduced.

1. That the *sacculi* or bags which are placed in the groins for the reception of the testicles in proper time, do, when closed, constitute the *tunica vaginalis testis*; and are true and original processes of the peritoneum.

2. That of all the parts contained within the scrotum, these *sacculi* are the only ones which communicate with the cavity of the abdomen; and that when that communication is once closed, there never is nor can be, any natural one between the belly, and either the common or proper membranes or coats of the scrotum or testicles: nor can any thing pass from the one to the other.

3. That whatever fluid may be shed from the spermatic vessels, or collected or extravasated in the cells of the *tunica communis*, or those of the *dartos*, yet no part of them can be derived from, or received into the cavity of the *tunica vaginalis testis*.

4. That a total failure of the secretion of that fine fluid which should moisten the inside of the tunica vaginalis and the outside of the tunica albuginea, must be attended with an unnatural cohesion of these membranes with each other; and consequently a lessening or abolition of the cavity of the former.

5. That if more of this fluid is deposited than the absorbent vessels can take up, or if the absorbent vessels do not execute their office, it must be accumulated within the cavity of the said tunic; from which there being no natural outlet, the consequence must be a gradual distention and enlargement of it.

6. That the natural communication between the cavity of the tunica vaginalis and belly, not being shut until some time after birth, it may close at its upper part while there is a quantity of fluid in the lower, too large for the absorbent vessels of an infant to take up immediately; and consequently such infant will, until that office is executed, labour under a true hydrocele of the tunica vaginalis: a case extremely common, though generally passing for a wind-rupture.

7. That

7. That the water of that kind of hydrocele which is formed<sup>k</sup> by the sac of a congenial hernia, must be lodged within the cavity of the tunica vaginalis; while all collections of serum in the sacs of other kinds of herniæ, must necessarily be perfectly distinct from the said tunic.

#### S E C T. IV.

##### *The ANASARCOUS TUMOR of the* SCROTUM.

**T**HE scrotum is the common receptacle of both the testicles, consisting of the cuticula, cutis, and what all anatomists have now agreed to call the dartos; which is a loose cellular membrane, perfectly void of fat, and whose cavities communicate with each other with the utmost freedom through every part.

As this membrane has no communication with the cavity of the abdomen

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within

<sup>k</sup> A hydrocele formed by a collection of fluid in the sac of a congenial hernia, is the only case which can in any manner vindicate that strange general assertion of Mr. Cheseldon, viz. — That the omentum usually, and the gut sometimes, descends from the belly into the sac of a hydrocele; a case which undoubtedly has been seen, but is very far from being a common one. See Case 20 and 21.

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within the peritoneum, it is plain that whatever kind or quantity of fluid may at any time be deposited in it, cannot be derived from thence, even tho' the patient should labour under a true ascites; but as its cells have free intercourse with those of the general cellular or adipose membrane all over the body, they will be liable to be affected by all those disorders which have their seat in that membrane, that is, by all disorders proceeding from a low impoverished state of blood, from the deficiency of the urinary secretion, or from the absorbent vessels not executing their office, and consequently in anasarca and leucophlegmatic habits, will become the seat of a watry extravasation.

This watry swelling of the scrotum, tho' it is most frequently a symptom of a dropical habit, and very often accompanies both the general anasarca and the particular collection in the abdomen called ascites; yet even in the latter case it neither is nor can be derived from the cavity of the belly, but is confined to the tela cellulosa which lies on the outside of the peritoneum; the water derived from hence distends the scrotum in the same manner, and for the same reason that it often does the legs and feet.

feet. The cells of the dartos being large and absolutely void of fat, and the skin which covers them being extremely dilatable, and giving way for a larger influx into this part than into most others, has indeed occasioned its being taken notice of as a particular disease, though it is most properly a symptom only.

This being the case, and the true method of cure consisting in an internal medical process, it has been I think improperly ranked among the species of hydrocele; though the nature of the contents will certainly admit the use of the word. It is indeed a disease which most properly comes within the province of a physician, but as it is of some consequence to be able to distinguish it from other disorders affecting the same, or the neighbouring parts, and as surgeons are often called upon to assist in alleviating some of the inconveniences which this defluxion produces, it will not be amiss in this place to give a short account of it, and the chirurgical method of attempting its relief.

It is an equal, soft tumor, possessing every part of the cellular membrane in which both the testicles are enveloped<sup>1</sup>, and consequently

<sup>1</sup> I have once seen the scrotum anasarctous on one side only, and so perfectly so, that it was mistaken for a hydrocele of the tunica vaginalis. See the Case of Corby, No. 3.

frequently is as large on one side as on the other; it leaves the skin of its natural colour, or to speak more properly, it does not redden or inflame it: if the quantity of water is not large, nor the distention great, the skin preserves some degree of rugosity, the tumor has a doughy kind of feel, easily receives, and for a little while retains the impression of the fingers; the raphe or seam of the scrotum divides the swelling nearly equally; the spermatic process is perfectly free and of its natural size, and the testicles seem to be in the middle of the loaded membrane. But if the quantity of extravasated serum is large, the skin instead of being rugous is smooth and tense, and plainly shews the limpid state of the fluid under it; it is cold to the touch, does not so long retain the impression of the fingers, and is always accompanied with a similar distention of the skin of the penis; the preputium of which is sometimes twisted and distorted in such a manner, as to make a very disagreeable appearance. These are the local symptoms, to which it may be added, that a yellow countenance, an inappetence, a deficiency of the urinary secretion, swelled legs, hard belly, and slimy stools, are its frequent companions.

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The cure of the original disease comes, as I have already observed, within the physician's province, and requires a course of internal medicines ; but sometimes the loaded scrotum and penis are so troublesome to the patient, and in such danger of mortification, that a reduction of their size becomes absolutely necessary : and at other times a derivation of the redundant extravasated serum from this part is ordered as an assistant to the internal regimen.

The two chirurgical means in use for accomplishing this end, are puncture and incision ; the former of which is made with the point of a common lancet, the latter either with that, or a knife.

The generality of writers on this subject have spoken of these two methods in such manner, that a practitioner who had seen but little of either, would be inclined to think that it was matter of great indifference which he should prefer ; and that the utility and safety of each was equal.

The intention in the use of either, is by a discharge of the extravasated fluid to alleviate the present uneasiness ; and by reducing the size of the scrotum, to render it less troublesome and less likely to mortify : in some few instances it has indeed happened,

pened that this local drain has proved a radical cure of the original disease, but that is accidental, and not to be depended upon; the intention is generally palliative, and if the patient lives, most likely to require repetition; therefore if there is any difference between the two methods with regard either to ease or safety, there can be no doubt which ought to be preferred.

Large wounds of membranous parts in anasarca or dropical habits, are always painful and frequently hazardous; they are very apt to inflame, are very difficultly brought to suppuration, and will often prove gangrenous in spite of all endeavours to the contrary. These consequences do not attend upon simple puncture made into the same parts; they leave the skin easy, soft, cool, uninflamed, and in a state to admit a repetition of the same operation if necessary: the former creates a painful, undigested, hazardous sore, requiring constant care; the latter hardly ever creates any uneasiness at all, and requires only warm fomentation and a superficial dressing.

Now altho' there is so material a difference in the symptoms attending the two methods, yet there is none in their effect; the communication of the cells of the dar-

tos

tos is so free through every part of it, that punctures made with the fine point of a bleeding lancet into the most superficial of them will as certainly and as freely drain off all the water as a large incision, without any of its inconveniences or its hazard : neither the one nor the other will cure the original disease unless by mere accident ; they are both made with a design only to relieve the local one ; the same habit and constitution remaining, the same effect will in general follow, and the same relief be again necessary : the ease, the freedom from bad symptoms or danger, and the state the parts are left in render one method practicable at all times, and capable of being repeated as often as it may be thought necessary : the fatigue, pain, confinement, and hazard, make a single experiment of the other as much as most people chuse to submit to, or indeed as some have an opportunity of complying with.

C A S E. I.

**A** Man about fifty-five years old, who had lived freely, was afflicted with an anasarcaous tumor of his belly, legs, thighs, scrotum, and penis ; accompanied with the  
general

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general symptoms which most frequently attend such complaints, viz. prostration of appetite, little and high coloured urine, a hard belly, and a bloated face.

He had taken many medicines by the direction of a physician in the country, and more than one quack remedy after he came to London, but to no purpose; the watry load increased daily, and the swelling of the penis and scrotum became so troublesome as to prevent his wearing his breeches.

In these circumstances a person who attended him in the capacity of surgeon and apothecary, proposed to draw off the water by a large incision on each side of the scrotum, to which he consented; the incisions were made, and the scrotum in a few hours became empty and flaccid.

At the distance of five days from the operation his surgeon died, and I was desired to visit him.

I found him in bed with a painful, foul, undigested sore on each side of the scrotum; which though it had at first been emptied by the incision, was now again considerably loaded with serum, was hard, and much inflamed: the edges of the wound had a livid hue, the discharge was a discoloured gleet,

gleet, and the pain was so great that he could get no rest. His pulse was frequent, hard, and small, his breathing not perfectly free, his urine little and high coloured, his thirst very troublesome, his belly hard and tight, and having taken an opiate every night for some nights past on account of pain, he had had no stool for three days.

I dressed the incisions with a soft digestive, and covering the whole scrotum with a warm pultice tied it up in a bag truss, directed a glyster to be thrown up immediately, and ordered a gentle purge to be taken next morning early; which in the following day gave him four or five motions, rendered his respiration free, and his belly softer.

Next day the inflammatory hardness of the scrotum seemed to be going off, and to be succeeded by an emphysematous kind of appearance; and in four days from my first seeing him, the whole bag was in a state of mortification, notwithstanding constant fomentation, cataplasm, &c.

Having already taken a large quantity of medicine of different kinds, it was with much difficulty that I could prevail on him to hear of any more; but upon making a true representation of the state of his case,  
and

of his imminent hazard, he consented to take the bark, with some confect. cardiac. and tinct. rad. serpentar. every three or four hours.

By putting a tea-spoonful of brandy into each dose, it kept upon his stomach. At the end of three days the pain and soreness were considerably lessened, and on the sixth he got a little quiet sleep without any opiate; on the ninth the mortified parts seemed inclined to separate, and the gleet was small in comparison of what it had been. On the twelfth there was an appearance of tolerable good matter from the separated edges; in about fifteen or sixteen days a laudable suppuration was established, and the mortified parts were every where loose and falling off: instead of a small quantity of high coloured urine, he now made what was nearly equal to what he drank, and that well conditioned, and the load in his limbs was considerably less.

He now began to nauseate the bark in the form he had hitherto taken it, it was therefore changed for another which he took at larger intervals, and to assist his discharge by urine, his apothecary gave him an infusion of the cineres genistæ, and  
horseradish

horfe-radish, which answered the purpose very well.

The whole scrotum and dartos cast off in a large slough, and left the tunicae vaginales of both testicles as bare and clean as if they had been dissected; these were soon covered by a new incarnation, which supplied the place of scrotum tolerably well, and by persisting in the use of the same remedies for a few weeks longer he was restored to perfect health.

C A S E II.

A Man not exceeding forty, who had drank freely of spirituous liquors, was thereby brought into the same circumstances as the patient in the preceding case, that is, his countenance was yellow and bloated, his legs, thighs, scrotum and penis were loaded with an anasarcaous tumor, he had little or no appetite, and made a small quantity of high coloured urine.

Internal remedies having been some time tried ineffectually, he was advised to have an incision made on each side of the scrotum, by which means all the swelling both of it and of the penis was immedi-

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ately

ately removed, and the patient much pleased.

On the fourth day from the operation all discharge of serum ceased, and the wounded parts swelled, inflamed, and became extremely painful. Fomentation, cataplasm, and proper digestive dressings were used, but without any relief from the pain, or any beneficial alteration in the appearance of the fores.

On the sixth day from the incision I was desired to meet the gentleman who had the care of him, and found that the hard inflammatory kind of swelling, which a day or two before had occupied the whole scrotum, was gone off, and that it was now becoming flabby and livid, especially about the incisions.

I proposed the cortex, but it was not complied with; nor do I know what the medicines were which he did take, neither myself nor the other surgeon being consulted on that head: warm spirituous fomentation, with proper poultice and dressings were continued, but to no purpose. I saw him each morning for four days, during which he got little or no rest, and complained of great pain and burning heat within his belly; the watry extravasation  
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in his legs and thighs increased daily, the whole scrotum, and skin of the penis became black and mortified, as did also a part of the pubes, and on the eleventh day from the incision he died.

C A S E III.

A Man about 45 years old, by name Corby, who was a patient in St. Bartholomew's Hospital, shewed me a swelling on the left side of the scrotum; it was large, full, and tight, and had all the symptoms and appearances of an hydrocele of the tunica vaginalis, viz. the fluctuation of the fluid, the freedom of the upper part of the process, and the concealment of the testicle.

I was so well satisfied of the disease, that without any scruple I pierced it with a small trochar in the lower and anterior part, and thereby let out about two ounces of limpid water, but could by no means draw off any more, tho' I passed a probe up the canula and tried all other means which were proper to obtain it.

I withdrew the canula and again examined the swelling, which was very little less for what had been done; but tho' it was not much decreased in size, it was con-

considerably altered in its appearance: I could now very plainly distinguish the testicle, and was convinced that the whole disease was confined to the cells of the dartos. In short, it was (what I had never seen before) an anasarca of that membrane, confined to one side only, having a certain quantity of the water in one cyst or bag, and the rest diffused through the cells in the usual manner: the latter made all the remaining tumor after tapping, and the former had concealed the testicle.

Being now perfectly satisfied of the true nature of the case, I made an incision about an inch long through the scrotum into the surface of the loaded dartos, intending thereby to drain off the the water; and by procuring a suppuration, to cure the disease: into the incision I put a bit of dry lint, and tied the scrotum up in a bag-truss.

To my great astonishment the next morning, my dresser told me that Corby's scrotum was swelled to a great size; and that the incision was already livid: I went to the hospital and found it so, ordered the part to be fomented, and wrapped up in a warm poultice, and that the man should take the bark, till the physician should see him.

In three days time the whole frotum and skin of the penis was compleatly mortified, and a considerable part of the pubes altered and vesicated; his pulse was quick and small, he complained of a burning heat in his belly and bladder, his thirst was intense, and his extremities cold.

For several days I was convinced that each would be his last; his fomentation, cataplasm, and proper dressings were continued, the doctor ordered him to take a dram of the bark as often as his stomach would bear or keep it, in a julep well impregnated with volatile salt, and the poor man earnestly begged to be allowed a pint of porter a day, which he had. At last, in about three weeks time, the whole scrotum, the integuments of the penis and some part of the pubes cast off, leaving the corpora cavernosa penis, and the tunicae vaginales, as clean as if they had been very neatly dissected, and the man got well.

I could produce more instances of the trouble and hazard which has attended large incisions of the scrotum in dropfical cases, but the simularity of them renders it unnecessary; from the simple punctures of this part I never met with either, nor was

I ever disappointed by their not answering the purpose they were intended for, viz. a temporary discharge of serum from the cellular membrane.

## S E C T. V.

**I**F we consider the preceding complaint as merely symptomatic, and do not rank it among the different kinds of hydrocele, there will remain only three, viz.

1. That which consists of a collection of water in the cells of the tunica communis or cellular membrane, enveloping and connecting the spermatic vessels.

2. That which is formed by the extravasation of a fluid in the same coat as the former; but which instead of being diffused through the general cellular structure of it, is confined to one cavity or cyst, in which all the water constituting this species of the disease is contained, the rest of the membrane being in a natural state.

3. That which is produced by the accumulation of a quantity of water, in the cavity of the tunica vaginalis testis.

These three are distinct, local, and truly within the province of surgery. They may acci-

accidentally be combined or connected with other disorders, but not necessarily; and are frequently found in persons whose general habit is good, and who are perfectly free from all other complaint.

*The HYDROCELE of the Cells of the*  
TUNICA COMMUNIS.

**I**N the anatomical account of the parts which make the seats of the different kinds of hydrocele, it has been observed, that the spermatic vessels from their origin, quite down to their insertion into the testicle are enveloped in, and connected together by a membrane called formerly tunica vaginalis vasorum spermaticorum, but now more properly tunica communis; that this membrane has no one particular cavity as its old name would seem to imply, but is merely cellular, which either the extravasation of a fluid or the inflation of air will always prove; that while it is within the cavity of the belly its cells are lax and large, and when it has passed out from thence and forms a part of the spermatic chord or process as it is called, they are smaller and the membrane firmer; that it is included within that thin expansion of muscular

fibres called the cremaster, and that a great number of lymphatic vessels passing from the testicle toward the receptaculum chyli, are always to be found in it.

Whether it proceeds from obstruction or breach of these lymphatic vessels, from pressure made within the abdomen, from an obstruction of the parts which should receive this lymph from the vessels of the chord, or from what other cause I will not pretend to say, but the cells of this membrane or tunica communis, are sometimes filled with an extravasated serum confined absolutely to them, not affecting the dartos or any other part, and thereby constituting a disease which is strictly local <sup>m</sup>.

This is a complaint which does not in general give a great deal of trouble, unless it arrives to a very large size, and being by no means so frequent as either of the other  
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<sup>m</sup> “ J’ai souvent vû des tumeurs aqueuse grosse comme  
“ des grains de raisin placées d’espace en espace le long du  
“ cordon spermatique accompagner une veritable hydrocele  
“ placée sur le corps du testicule. Le Dran.

The first part of this paragraph is a just and true description of the hydrocele of the cells of the tunica communis, when not much distended; but if by “une veritable hydrocele,” Mr. Le Dran means that of the tunica vaginalis, his description of it, as “Une tumeur aqueuse placée sur le  
“ corps du testicule,” is very inexpressive and inadequate, and likely to convey an erroneous idea of the disease.

two kinds of hydrocele, it is in general but little known or attended to. With some it passes for a varix of the spermatic chord, with others for the descent of a portion of omentum, which having contracted an adhesion cannot be returned: thus giving but little uneasiness, and while it is within moderate bounds hindering no necessary action, they who have it rest contented with a suspensory bandage, and find very little inconvenience from it.

Sometimes indeed it arrives to so large a size, and gets into such a state, as to become an object of surgery and require our attention, as may be seen in the following cases.

In general, and while it is of a moderate size, the state of it is as follows.

The scrotal bag is free from all appearance of disease, except that when the skin is not corrugated it seems rather fuller, hangs rather lower on that side than on the other, and if suspended lightly in the palm of the hand feels heavier; the testicle with its epididymis is below the fullness, very distinctly to be felt, neither enlarged nor any way altered from its natural state; the spermatic process is larger than it ought to be, and feels either like a varix of the vessels,

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sels, or like an omental rupture, according to the different size of it ; it has a pyramidal kind of form, broader at bottom than at top ; by gentle and continued pressure it seems gradually to recede, but returns immediately upon removing the pressure, and that as freely in a supine as in an erect posture ; and is attended with no pain except that small degree of it which arises from the increased weight, and which is not felt in the scrotum but in the loins.

If the load is confined to what is called the spermatic process, the opening in the abdominal muscle is not dilated, and that part of the process which passes through it may be distinguished ; but if the membrane which invests the spermatic vessels within the abdomen is affected, the tendinous aperture is then enlarged, and the size of the distended membrane passing through it produces the appearance and the feel of an omental rupture.

### C A S E IV.

**A** Gentleman about 35 years old, came out of the North to London, for the assistance of Mr. William Sharpe, in the case of a large tumor of the scrotum which

he said had been coming about five or six years.

The account he gave of it was, that at first it was small, easily as he thought put up, but came down again immediately, which he attributed to his not being furnished with a proper bandage; at the end of nine months or rather more, he found that he could not reduce it at all, whatever pains he took, or whatever posture he put himself into, and from this time its increase was daily more apparent.

The case was singular, and Mr. Sharpe desired me to see it with him.

The scrotum was of a most prodigious size, it hung more than half way down to his knee, it was very ill supported by an awkward bandage of his own making, and toward the lower part much ulcerated from neglected excoriations.

The tumor was very different to the touch in different parts of it; in some it was hard, in others softer, and in some it palpably discovered a thin fluid: the spermatic process was large and full quite up to the groin, the aperture in the abdominal muscle seemed much dilated by it, and when he coughed the whole tumor was affected: his stools were regular, his appetite pretty

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pretty good, his urine proper in quality, but deficient in quantity, and he made no complaint but of a pain in his back, proceeding, as we supposed, from the weight of the scrotum, and of a languor and dispiritedness which he could not account for.

The feel of some part of the swelling was like that of an intestinal hernia, in which the gut does its office in the scrotum, and there is no stricture above; but some other parts were so unlike to this, and the upper part toward the groin was so large and so hard, that we were in great doubt concerning the true nature of the contents.

When we had sufficiently examined him in an erect posture, we put him into a supine one, which produced a great change in appearances. The tumor of the scrotum became manifestly less and softer, and seemed by retiring to occasion a large swelling on the same side of the belly, just above the os ilion, tending backward toward the region of the kidney; upon continued pressure the contents of the scrotum seemed to recede still more, and still as they receded the swelling on the side of the belly increased.

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When we were got to a certain point, we could get up no more; but during our endeavours to return as much as we could, we clearly discovered that the tumor of the scrotum, and that within the belly, were produced by the same body: that there was a palpable fluctuation of a fluid from one to the other, which seemed to communicate freely; and that the harder parts of the swelling were mere indurations of the integuments and common membrane.

The burden was so great that the patient was desirous of being eased at any rate; we told him our opinion, our suspicions, our fears, and what hazard might be incurred if we should find ourselves mistaken in the first: but he being determined to take the chance of relief at all events, and we having prepared ourselves as well as we could for whatever might happen, made a small incision into the lower and anterior part of the scrotum.

We had no sooner divided the skin than a considerable quantity of clear limpid water gushed forth, of which we caught about a quart; and then the orifice was stopt by something which thrust itself forth and looked like a piece of cellular membrane loaded with water: we cut a part of  
it

it off, and gently thrust back the rest with a probe, while by moderate pressure on the side of the belly and scrotum, we drained off eleven Winchester pints of serum.

When we could get no more water out easily, we would have enlarged the wound; but our patient was so lightened, and found himself so easy, that he would not submit to it.

The scrotum it is true was considerably lessened by the incision, but in no proportion to the quantity of water which had been drawn off; the whole spermatic process, from the testicle quite up to the belly, was still large and full, and the abdominal aperture dilated by a body which seemed to pass through it: but as the swelling on the side of the belly could not now be felt in any posture, and as the scrotum was reduced to such size as to be easily supported by a bag-truss, he determined to wait and see the effect of what had already been done.

In little more than a month I saw him again, his scrotum was as full, the tumor in the belly as apparent, the fluctuation as palpable, and his burden as great as ever; his health was still pretty good in general, though his face appeared to me to be more  
pale

pale and wan, and he complained rather more of a thirst, and of that depression and languor which I mentioned before.

As we were now sure of the nature of the contents, we laid open the whole scrotum from the bottom upward.

The lower part was formed into a cyst or bag by the pressure of the water which was discharged upon the introduction of the knife, but all the rest of the tumor was made by a diffusion of it through all the cellular structure of the tunica communis, the cells of which were all loaded, and much enlarged with it quite up to the groin, the testicle being very distinct and apparently free from disease.

The serum oused freely from all parts of it by gentle pressure, and as it seemed to subside greatly thereby, we meddled no farther with it, but filled the incision lightly with dry lint, and suspended the whole in a bag-truss.

During the first two or three days the discharge of water was constant and plentiful, the sore was as might be expected crude and undigested, but had none of that inflammatory hardness and swelling, which wounds made in such parts in healthy sanguine people generally have; on the contrary,

trary, the divided lips were flaccid and soft, he was perfectly free from pain and fever, and except the circumstances just mentioned of thirst and anxiety, had no one disagreeable symptom.

The discharge of water continued large, the wound neither inflamed nor digested, nor on the other hand did it wear any face of gangrene or mortification; but his languor and anxiety increasing hourly, and his wound remaining in the same unaltered state, on the 14th day from the last operation he died.

Upon opening his body we found all the cellular membrane which invested the spermatic vessels within the belly, loaded with water, and distended in a very irregular manner, from their origin quite down to the opening in the abdominal muscle; at this place it was contracted into a round or rather flatned body of less size, but still so large as to dilate the opening in the tendon considerably: below this it was again expanded and distended with water thro' all its cells, but the testicle and its tunica vaginalis were in a natural and sound state, and perfectly unaffected by the disease.

Was it the large discharge of serum, or the free division of the membranous parts  
which

which occasioned this gentleman's death? For my own part I am inclined to attribute it to the former; for though an incision made in parts of such structure, and so diseased, does sometimes prove fatal, yet the parts themselves in such case generally show by a gangrenous or mortified appearance, what share such operation has in the destruction of the patient.

In this case indeed there was no digestion, nor any of that degree or kind of inflammation which usually precedes supuration; nor on the other hand was there any appearance like gangrene or sphacelus, but his manner of dying was very much like that of those who are destroyed by large hæmorrhages.

#### C A S E V.

A Man about 55 years old desired me to look at a rupture under which he said he had laboured several years. For the greater part of that time he had worn a steel-truss, which had given him no uneasiness, but had never kept it up properly; during all that time he never had any symptoms of stricture in the intestinal canal, nor had it ever increased in size, or altered its appearance,

ance, until within the last three or four months, when he had been persuaded to change his truss for a bandage without iron, and to make use of an external application which was said to be infallible.

What the application was I know not, but its effect was an excoriation of the groin and parts about; the bandage was made of dimity, had a large hard bolster, and was buckled on very tight.

The pain it gave him was great, but he submitted to it chearfully at first, being told that the medicines, assisted by the pressure, would soon shrink up a piece of caul which was in the scrotum, and free him from all possibility of a return of his disease; and that after that was done, he might leave off all kind of bandage and do as he pleased.

He made the experiment till the parts were so much swelled, and the pain so great, that he could bear it no longer, and came to me for assistance.

The scrotum was much inflamed and swelled, the groin excoriated, the testicle enlarged but not hard, the spermatic process quite up to the belly full, tight, and so exquisitely painful and tender, that he could not bear the most gentle handling; he had no obstruction in his stools, nor any

symptom of the confinement of any part of the intestinal canal.

The principal information which I could get was from his own account, for he could not bear the slightest touch. Whatever might be the true state of the case, it was clear that the first thing to be done was to get ease; I therefore bled him freely, put him to bed, ordered him a glyster immediately, to take two spoonfuls of a purging mixture every two hours, until he had had two or three stools, and then to take a grain of extract. thebaic: I wrapped up the whole scrotum and covered the groin and pubes with a soft, warm pultice, and put him on a bag-truss.

He passed the day in a very uneasy restless state, and in the evening finding his pulse not at all lower nor his pain less, and his purging mixture having operated sufficiently, I ordered his opiate to be repeated in the same dose, at the distance of six hours, unless he first was easy or got sleep, and bled him again fourteen ounces.

Forty-eight hours passed over, and he took seven grains of the extract thebaic, before he could get sleep or ease, and when he obtained the former it did not last above three or four hours; however he awoke

much easier and refreshed, his pulse softer and his perspiration free: the parts less inflamed and less painful to the touch, tho' still very tender.

His pultice was renewed after fomentation, and he was directed to take every six hours a draught of the common emulsion, with nitre and some manna dissolved in it, by which means he had in the course of the third day two more stools.

By these means in the space of six or seven days, all his inflammatory symptoms were removed, and the parts reduced as he thought to nearly the same state in which they were before he changed his bandage, that is, the testicle was of its natural size, but the process large and full, tho' soft and indolent, and feeling very like to a small omental rupture.

For greater certainty I kept him to his bed a day or two more, and confined him to the same low regimen with an open body.

The process remained still in the same state; I attempted to reduce the apparent rupture but without success, though there was no sort of reason to think that there was the least stricture made on it by the tendon: I could indeed make a small part  
of

of it recede, but even that did not pass the opening at all like a piece of omentum, created none of that sensation to my fingers, nor made any of that kind of noise which the return of a portion of caul into the belly always produces, and the moment I removed my fingers it fell down again, even tho' he was in a supine posture.

In short, I made the attempt for reduction so long and so often, as to be satisfied that it was not reducible, at least by me.

It now gave him no pain nor uneasiness of any kind, and having already suffered so much from the pressure of his bandage, and believing from the attempts which I had made without success that it was incapable of reduction, he contented himself with a common suspensory bag, and found not the least alteration in it for three years, at the end of which time he was attacked with a peripneumony which carried him off.

I got leave to examine his body, and found that what I had taken for a portion of omentum, was a collection of water in the cells of the tunica communis of that part of the spermatic chord which was on the outside of the abdomen; while the testicle and tunica vaginalis were in a natural state, and absolutely unaffected.

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Notwithstanding the account the patient gave of himself, and of his frequently reducing his rupture, I am much inclined to believe that he never had one; and that his disease was from the first what it appeared to be at last: there was not the least sign of a hernial sac, and tho' the return of such sac back again into the belly, after it has been in the groin or scrotum, is a thing much talked of by some late writers, I do not believe it ever happened. His steel-truss did not press hard enough to produce any mischief, and was said not to keep the rupture up; and the symptoms which I found him labouring under were occasioned merely by the bandage substituted in the place of the truss, pressing on the spermatic vessels and loaded membrane.

C A S E VI.

A Healthy middle aged man applied to me one day while I was dressing in St. Bartholomew's Hospital, and shewed me a considerable swelling of the scrotum. I examined it and told him I believed it was water; he replied that he knew it was, for that Mr. Baker, then one of the surgeons of the Westminster Infirmary, had

a few days before drawn off some by puncture with a lancet.

Upon hearing this I examined it again, imagining that I might find it to be blood, a circumstance which I had more than once seen after tapping a hydrocele; but still it appeared to me to have all the characteristics of water, the skin was a little thickened by the insinuation of a small quantity of fluid into the dartos, but the testicle was much too plain to be felt for a hydrocele of the tunica vaginalis, nor was the upper part of the process in that small or free state as it usually is in such cases.

I took him into the hospital and ordered him to keep in bed till the next day, at which time I passed a small trochar into the anterior part of the tumor a little higher than usual, having grasped the upper part tight to prevent hurting the testicle: at first a limpid serum flowed freely, but that soon stopped, and I was necessitated to pass a probe frequently up the canula to get away the remainder, neither could I by that means, nor by pressure, reduce the scrotum to a proper size or take off the fulness of the process.

I ordered the parts to be fomented night and morning, the whole scrotum and groin

to be covered with a soft pultice, and a solution of manna and Glauber's salt to be taken the next day.

The applications were continued constantly, and the purge repeated every second or third day for a fortnight; at the end of which time the swelling was as large as when I first saw it.

During this interval I frequently examined the parts, and always found the testicle much more free and independent of the complaint than I had ever felt it in a hydrocele of the tunica vaginalis. It appeared to me from the kind of fluid which had already been let out, and from the present appearance of the part, that no cure would be obtained without laying the whole open; but as I was by no means certain what was the precise nature of the disease, or in what state the parts might be found, I informed the man that it might possibly become necessary to remove that testicle: this he consented to if it should appear so, and I immediately made an incision through the skin from the groin quite down as low as the testicle, intending if I found the spermatic process diseased to have tied and removed it.

The incision was followed by a large discharge of water, not only from the lower  
parts

parts where it was collected into one cavity, but from the surface of the whole cellular membrane covering the spermatic process.

Finding the tunica communis no other way diseased than by the distention of its cells, I went no farther, but filled the incision lightly with dry unformed lint.

For three or four days a large quantity of serum was discharged through the lint, but that ceasing, a plentiful suppuration succeeded, in consequence of which all the swelling and fulness subsided, and in due time he was perfectly cured, without any remains of his disorder.

In making the incision I was particularly careful not to go so low as to touch the tunica vaginalis, which with the testicle was absolutely unaffected.

## S E C T. VI.

### *The* ENCYSTED HYDROCELE *of the* TUNICA COMMUNIS.

**T**HIS species of hydrocele has its seat in the same part as the preceding, viz. the tunica communis, or cellular membrane which invests the spermatic vessels; with this difference, that in the former the  
water

water is diffused in general through all the cells of the membrane, whereas in this it is contained in one cavity only.

If any of the three kinds of hydrocele deserve the name of encysted, it is this; the water which constitutes it being all contained in a bag formed as all the coats of all encysted tumours are, viz. by mere pressure of the common membrane.

It is a complaint by no means infrequent, especially in children and young people; it was very well known to many of the ancients, and has been very accurately described by some of them, <sup>n</sup> though later writers have often mistaken it for, and represented it as a species of wind-rupture or pneumatocele.

It most frequently possesses the middle part of the process between the testicle and groin, and is generally of an oblong figure; whence

<sup>n</sup> By Albucasis, by Celsus, Paulus Ægineta, &c.

Paulus has particularly distinguished this kind of hydrocele from that of the tunica vaginalis, by a just description of both. “ Si humor in membrana supernata coierit, tumor alterius testiculi imaginem exhibet.

“ Quibus in erythroide tunica humor comprehensus est, tumor rotundus paululum, et ovi modo longiusculus; “ his testiculus in conspectum non venit, ut qui undiquaque “ fit implicitus.”

The former of these descriptions our countryman Peter Lowe, most probably copied; who says it is sometimes inclosed in a membrane and appeareth like a third testicle.

whence it has been compared to an egg by some, and by others to a fish's bladder: whether its size be large or small, it is generally pretty tense, and consequently the fluctuation of the water within it is not immediately perceptible; it gives no pain, nor unless it is very large indeed does it hinder any necessary action; it is perfectly circumscribed, and has no communication either with the cavity of the belly above or with that of the tunica vaginalis below it; the testicle and its epididymis are perfectly and distinctly to be felt beneath the tumor, and absolutely independent of it; the upper part of the spermatic process in the groin is generally very clear and distinguishable; the tumor does not retain the impression of the fingers, and when lightly struck upon sounds and feels as if it contained only air; it undergoes no change of figure from change of posture; and has no effect on the discharge per anum.

These marks will be sufficient to distinguish it from all other diseases which affect the same part, while it is simple and uncombined; but it sometimes happens that the present complaint is found in the same subject, and on the same side, connected either with a true hernia, or with a hydro-  
cele

cele of the tunica vaginalis, by which the case is rendered complex and not so easy to be understood.

In this, as in every other case where from a complication of symptoms or appearances, a combination of diseases may be suspected, there is but one method of investigating the truth ; which is, to consider carefully what diseases the part agrieved is naturally liable to, what the distinct symptoms and appearances of each of those are, and what are the effects of the present complaint.

The two diseases with which this kind of hydrocele is most likely to be combined, are, as I said before, a hydrocele of the tunica vaginalis, and a true hernia ; the parts within the groin, spermatic process, and scrotum, being the seat of each of the three.

One mark or characteristic of the hydrocele of the tunica vaginalis, is, that it possesses and distends the lower part of the scrotum, and that the testicle being nearly surrounded by the water, cannot be distinguished by the fingers of an examiner ; whereas in the encysted collection in the chord, the tumor is always above the testicle, which is perfectly distinct, and plainly

to be felt below. Tho' the fluid in a hydrocele of the tunica vaginalis does so nearly surround the testicle as to render it not easily distinguishable in any point, yet the different parts of the tumor have a very different feel; for instance, in all those parts of it where the vaginal coat is loose and separate from the albuginea, the swelling is soft and compressible, and gives a clear idea of the contained water, but where the tunica vaginalis and albuginea are continuous, or make one and the same membrane, and leave no cavity between them, that is on the middle and hinder part, there will always be found a hardness and firmness very unlike all those where the distance between the two coats leaves room for a considerable quantity of fluid: ° whereas the hydrocele of the chord being formed in the mere cellular membrane of it, is the same to the touch in all parts, and feels like a distended bladder through every point of it.

The free state of the upper part of the spermatic process, the gradual accumulation of the fluid, and consequently the  
gradual

° Tunica erythroides naturæ nervosæ, in gibba quidem et anteriore e testiculo libera est, in concava et posteriori ipsi adherescit, ex peritoneo originem trahens. P. Ægineta.

gradual growth of the tumor, its indolent and unaltered state, its being absolutely irreducible and unaffected either by the patient's coughing or sneezing, and the freedom of the fœcal discharge per anum will sufficiently distinguish it from an intestinal rupture, and he who mistakes it for an omental one must have a very small share of the *tactus eruditus*.

Now though there may not always be such external marks as may to the eye explain the combination of any of these diseases with each other, yet the particular seat and symptoms of each being known, and the sensations which they produce to the fingers of an intelligent examiner being well understood, when such mixed characteristics are found in the same subject we may reasonably conclude the case to be complex, and act accordingly.

I have indeed once seen an encysted hydrocele so high up, as to render the feel of the spermatic vessels very obscure; but then the appearances of the testicle below, and the absence of every symptom which could denote a stricture made on the intestine, were fully sufficient to prove what the disease was, or rather what it was not.

Infants

Infants are much more subject to this complaint than adults, tho' it is often met with in the latter.

In young children it most frequently diffipates in a little time, especially if assisted by warmth and an open belly; the sudden disappearance which it is liable to, added to the degree of tension it often has, have produced and confirmed the mistake of a wind-rupture.

If it does not disperse, the point of a lancet lets out the water, and in children most frequently proves a cure; in adults sometimes the cyst by long distention is become so thick as to require being divided through its whole length, which when necessary, may be done with the most perfect safety.

#### C A S E VII.

**A** Lad about 16 years old, was taken in- to St. Bartholomew's Hospital, with a complaint which he had been told was a rupture.

The tumor was large, of an oblong figure, began just below the exit of the spermatic process from the belly, and extended to the bottom of the scrotum; but in the  
middle

middle of it was a kind of depression or stricture, which seemed to divide it into nearly equal parts.

The upper part was so high, that I could by no means feel the process distinctly; and though there was palpably a fluid in the whole of it, yet the upper and lower parts did not seem to communicate with each other, at least the fluctuation was not manifest; he had no symptoms of a true hernia; and the account he gave of its gradual formation still more convinced me that it was principally, if not totally water.

I pierced the lower part of the tumor carefully with the point of a lancet, and drew off near half a pint of yellow serum; by which means the scrotum became immediately empty and rugous, and the testicle clear and distinguishable: but the upper part remained as large and full as before the puncture, and the bag which seemed to contain the fluid as tense; nor could I by any means obtain one drop more from the opening below.

The next day I ordered him a brisk purge, which operated well, and two or three days after being satisfied that the intestine could have nothing to do with it, I thrust

thrust a lancet into the anterior part of the upper tumor, by which means a quantity of clear limpid serum was discharged, and the whole swelling immediately disappeared, leaving the process perfectly free and distinguishable.

In a few days he left the hospital, and at the end of a year or a little more, he came to me again, with the lower part of the scrotum full, but no appearance of the former tumor above; in short, his first state was a complication of the encysted hydrocele of the chord with that of the tunica vaginalis testis: the former had never returned since the first puncture, the latter was as full as ever.

Considering the lad's age and temperament, I advised him to submit to the radical cure by incision; which was performed, and he got well in six or seven weeks, nor has he had any return of either disease since.

### C A S E VIII.

**A** Man about 35, who had for some years been troubled with a hydrocele of the tunica vaginalis, which had often been  
F emptied

emptied by puncture, came to me for advice.

The swelling in the scrotum he said was now about one third as big as when he used to have it tapped; it was not tense, was of an irregular figure, and plainly contained a fluid; but it was not on account of this that he applied to me.

Within two months past he had discovered another little tumor higher up toward his groin, and perfectly distinct from the lower one; it was about the size of the largest French walnut, and of an oblong figure; was absolutely indolent, very tense, and left the process at its exit from the abdomen perfectly free.

From the appearance which the swellings made, and from the account of the patient, I made no doubt concerning the nature of the case, viz. that the upper tumor was made by a collection of water in a cyst formed in the tunica communis, and that the lower one was a true hydrocele of the vaginal coat of the testicle.

Upon this presumption I pierced the upper with a lancet, and let out a small wine glass of clear limpid serum; the tumor immediately subsided and left the whole process

cess free, but the lower swelling was not at all affected by what had been done.

The puncture was well in a day or two, and the hydrocele of the vaginal coat not being full enough to be at all troublesome, he would not have any thing done to that at present.

At the end of about nine months he sent for me again; his hydrocele was full and large, but he had not the least remains of the tumor in the process.

The water was let out by puncture as usual, and has been several times since; but he has never seen any thing more of the collection in the chord.

#### C A S E IX.

**A** Lad about 14 years old was brought into St. Bartholomew's Hospital for a rupture, which a surgeon who had seen him at home, had told his friends was in a situation to admit no delay, and it being my week I was sent for immediately.

I found a large tumor, full and tight, possessing the whole spermatic process and scrotum, from the groin quite down to the testicle, which was independent of it, and perfectly distinguishable.

As he lay on his back it was perfectly indolent, but in an erect posture, or in stooping he complained of pain, it was not tender to the touch unless pressed hard, and was nearly of equal size from the top to the bottom ; it pressed so hard against the abdominal aperture, that I could by no means feel the spermatic process distinctly, he said it had appeared within a week, and that he had had no stools for five days.

Some of these were circumstances of importance, and might have passed for symptoms of a strangulated hernia ; but on the other hand, his pulse was soft, calm and quiet, and his skin cool, he had neither tight belly, nausea, hiccough, nor vomiting, nor any other symptom either general or particular, (the want of stools excepted) which could be thought to indicate a stricture made on the intestinal canal.

From the mere appearance, and from the feel of the swelling, I should have thought it to have been owing to water ; but the difficulty of distinguishing the spermatic process above, and the freedom of the testicle below, made me hesitate a little.

But though I was in some doubt concerning the precise nature of the disease, yet it was very clear that there was no necessity

cessity for an immediate operation; therefore having found that nothing could be returned into the belly, I ordered sixteen ounces of blood to be taken from his arm, a glyster to be thrown up immediately, and two spoonfuls of a purging mixture to be taken every two hours until he should have some stools.

He took his mixture only twice, and had six large stools that afternoon; and when I saw him the next morning he was perfectly well in health, but the tumor exactly the same in every respect.

I examined it again carefully, and was still more positive that it contained a fluid; but whether that fluid was in the tunica communis, or in a hernial sac, I could by no means be clear: however as there was no possible method of getting rid of it but by an opening, I determined to make it with such caution as to be prepared for whatever might happen.

Accordingly I made a small incision into the anterior and lower part; when I had divided the skin and cellular substance, I found a firm hard membrane which I took for the sac of a hernia, this I divided with the same caution, and gave discharge to a considerable quantity of limpid serum, upon

which the whole swelling immediately subsided, the spermatic process appeared in a natural state, and the opening in the tendon undilated.

The incision was dressed superficially, and healed in a few days.

In less than half a year he came to me again, with the swelling as large and in every respect circumstanced as before; his habit was so good, and I so well remembered the toughness of the cyst at the first opening, that I made no scruple of advising him to have it laid open through its whole length, this he submitted to and obtained a perfect cure.

## S E C T. VII.

### *The* HYDROCELE *of the* TUNICA VAGINALIS TESTIS.

THE third species of this disease is that which is confined to the cavity of the tunica vaginalis, or bag which loosely envelopes the testicle.

In the anatomical account of this coat it has been observed, that in a natural, healthy state, its cavity always contains a small quantity of a fine fluid, exhaled from  
capillary

capillary arteries, and constantly absorbed by vessels appointed for that purpose.

This fluid in the natural small quantity, serves to keep the tunica albuginea moist, and to prevent an adhesion between it and the vaginalis, a consequence which sometimes follows from such a diseased state of these parts as prevents the due secretion of it; on the contrary, if the deposition be too large, or if by any means the absorption of it is prevented, it is daily and gradually accumulated, and by distending the containing bag, forms the disease in question.

The two preceding species of hydrocele have their seat in the tunica communis of the spermatic vessels, one by a general diffusion of water through all the cells of the membrane, the other by a collection of it in one particular bag or cyst; but that which makes our present subject has no concern or connection with that membrane, but is absolutely confined to the cavity of the tunica vaginalis <sup>p</sup>.

F 4

It

<sup>p</sup> Fallopius though unacquainted with the real and true origin and nature of this disease, and supposing its manner of production to be very unlike what it really is, has yet given a very just account of the appearances both of this and the former, "*Alia vero est hernia aquosa in qua aqua distillat per vasa et venas occulto modo ac sensim ad scrotum.*"

It is a disease from which no time of life is exempt; not only adults are subject to it, but very young children are afflicted, and infants sometimes born with it.

Ruyfch is of opinion that a varicous state of the spermatic vessels is often the cause of it in adults; what foundation there may be for such conjecture I know not, but from the nature of the disease it is pretty clear, that whatever tends to increase the secretion of the fluid into the sacculus beyond the necessary small quantity, or to prevent its being carried off by the proper absorbent vessels, must contribute to the production of it, which is in general so gradual and slow, and at the same time so void of pain, that the patient seldom attends to it until it is of some size; on the other hand, it sometimes happens, that its progress is very quick, and I have seen it produced in a very few days from external violence.

The

tum. Hæc autem est duplex alia in qua continetur *aqua in membrana adnata*, et in proprio folliculo, alia in qua continetur in *inguinali tunica* quæ vestit testem. Cognoscitur aquam esse in tunica adnata quia *separatur testis a parte aquosa manibus*; præterea ista hernia habebit propriam circumscriptionem, aliquando rotundam aliquando ovalem. Si autem sit in vaginali tunica, non possumus amplius *arripere et distinguere* testem ab hernia, quoniam in eodem loco et aqua et testes sunt constituti.

Fallopious.

The size and figure of it are various in different people, and under different circumstances; in general at its first beginning it is rather round, but as it increases it sometimes assumes a pyriform kind of shape, having its largest extremity downward: sometimes it is very hard and incompressible, at others so little so, that in its very early state the testicle may easily be felt through the fluid. It is perfectly indolent, and what many writers have said concerning its transparency as its great characteristic, is by no means to be depended upon: in some few cases indeed in which the tunica vaginalis and scrotum are naturally very thin, and the collection made so quick as not to give the sacculus time to become thick, there is a kind of translucency, but as I have just said, it is not to be depended upon<sup>a</sup>.

The colour of the fluid is also different, sometimes it is of a pale yellow or straw colour,

<sup>a</sup> This circumstance of transparency, tho' a very fallible one, is almost the only one which I find many people look for, and are determined by; of all the characteristics of the disease, it is the most uncertain: the various colour and consistence of the fluid, and the texture and complexion of the skin and membrane, render it necessarily so. There are many other marks which are much more to be depended upon, and which all practitioners should be well acquainted with, otherwise they may fall into very pernicious and disgraceful blunders.

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colour, sometimes it is inclined to a green, and sometimes it is brown and turbid.

If the water is in any considerable quantity the testicle cannot be distinguished, but the spermatic process may almost always be felt in the groin of its natural size, and the vessels in a natural state; this is most frequently the case, but I have seen the bag so full, and distended up so high, as to prevent a distinct perception of the process: the same obscurity has been produced by the addition of an encysted collection in the chord, and by the addition of a hernia intestinalis.

The idea which many people form of this disease, as of a bag full of water in the middle of which the testicle is suspended, is erroneous, and may be productive of mischievous consequences, as it may induce a belief that every part of the tumor is equally proper for perforation, when the water is to be drawn off.

Whoever will make himself acquainted with the disposition of the testicle in its vaginal coat, and their mutual connexion, will see that in one particular place they are so inseparably a part of each other, that it is impossible for any fluid to insinuate itself between them there; but that in every  
other

other part they are absolutely unconnected and so distant, that from the great dilatibility of the tunic a very large quantity may be collected<sup>r</sup>.

In a hydrocele which is tolerably full, the place of this union is the posterior and middle, or rather the posterior and superior part of the tumor; a puncture made in this part can do no service, as it will not reach the water, and therefore cannot answer the intention for which it ought to be made, viz. the discharge of it, but it may, and most probably would wound the testicle or its epididymis, and thereby be the occasion of bad symptoms and unnecessary hazard; whereas an opening made in any other part of the whole tumor, will certainly let out the water, and is as certainly free from all kind of danger.

This connexion between the two tunics<sup>s</sup> at the upper and hinder part, is the reason  
why

<sup>r</sup> “Humor magna ex parte in tunica erythroide appellata testiculum ambiente in *partem anteriorem* colligitur, *qua potissimum membrana illa a testiculo separatur.* P. Æginet.

Mr. Le Dran, whose character in practical surgery stands high, seems to me to be less clear in his idea and definition of this disease, than of any other; his words are “Une vésicule aqueuse placée sur l’un de testicules auquel elle est adhérente, et comme elle devient quelquefois très grosse elle remplit presque tout le scrotum.” This does not, at least to me, convey an idea of its seat being within the cavity of the tunica vaginalis testis.

<sup>s</sup> I mean the vaginalis and albuginea,

why in a simple hydrocele of the vaginal coat, that part of it feels so very unlike to all the others, in which the great distance between the tunica vaginalis and testicle, being occupied by the extravasated fluid, produces to the fingers of an examiner a sensation very different from that which arises from the touch of them in conjunction with each other.

This is a circumstance by which the simple hydrocele of the tunica vaginalis may always be distinguished both from the anasarcaous tumor of the scrotum, and from the encysted collection in the chord; the former being every where equally tumid and soft, and every where equally receiving and retaining the impression of the fingers, the latter though circumscribed, and not very compressible, yet does not pit, and is alike to the touch in all parts of it.

An indurated or schirrhous testicle has very frequently a quantity of water lodged in its vaginal coat, a circumstance not to be wondered at; the diseased state of the parts will sufficiently account for the absorbent vessels not executing their office, and for the fluid being therefore accumulated; but tho' part of this mixed tumor is undoubtedly owing to water, and that  
water

water is certainly lodged in the tunica vaginalis, yet it is a very different disease from the true simple hydrocele of the same coat, and ought not to be confounded with it; one of the distinguishing marks of the latter being the natural, soft, healthy state of the testicle, and its induration and diseased enlargement the characteristic of the former.

This is a point of more consequence than perhaps it may at first seem to be, it regards not only the definition, but the treatment of the two diseases, and being rightly understood and attended to or not, may be productive of much good or ill.

By most of the writers on this subject<sup>t</sup>, we are advised in operating for the radical cure of an hydrocele, to regard the state of the testicle, and if we find it enlarged or putrid, or covered with hard or fungous flesh, to remove it immediately, which advice within proper limitation is certainly good; a testicle so circumstanced had better

<sup>t</sup> *Dispiciendum quoque porro est, num testiculus tumefactus aliquam materiam fluidam intus contineat, &c. Sed si forte simul nimis jam tum induratus, vel corruptus idem inveniatur, predicta ratione ligandus et resecandus, ne in carcinoma forte abeat.*

*Namque ubi forte vel putredo, vel schirrus, vel alia quædam corruptio vehemens testiculum invasit salutaris excindere.*

Heister.

And almost every writer on the subject.

ter be removed than not : but this has really nothing to do with the simple hydrocele, it relates only to the schirrous and cancerous testis : when these diseases are the subject of consideration, it makes a very necessary part of our observation, but has no concern with our present subject, and it is not easy to say which would betray a man's ignorance most, the undertaking the cure of a collection of water with a diseased testicle, by the mere division of the vaginal coat, or the not knowing, previous to such attempt, that this was the state of the parts within.

The truth is, our forefathers in this instance mistook an effect for a cause ; they first supposed the extravasated fluid to be of a noxious kind or disposition, and then imagined that the testicle was tainted and became diseased by swimming in it ; whereas the truth is just the reverse, the testicle is first diseased, and the faculty of regular absorption being thereby impaired, a quantity of serum is accumulated in the tunica vaginalis, and produces that mixed appearance which some people have not improperly called hydro-sarcocoele : but in this the extravasation of water is really the consequence,

sequence, and neither is, nor can be the cause of such state of the testicle.

They who choose it may call this a species of hydrocele, and the literal construction of the word will certainly vindicate them; but they will by that means run the risque of confounding together two things extremely unlike to each other, and which require very different treatment: the true simple hydrocele in which the testicle is soft and sound, admitting many things to be done to it with perfect safety, which are seldom attempted upon the other without hazard<sup>u</sup>.

It may indeed, and does sometimes become necessary to let the water out from the vaginal coat of an indurated testicle; but it should never be done without necessity, and always under a guarded prognostic,  
left

<sup>u</sup> I have twice seen very terrible symptoms follow upon an opening being made into the vaginal coat of a schirrhous testicle; the cases were nearly alike in their appearance previous to the operation, as well as in the symptoms which followed it. The testicle in each was hard, unequal, and beginning to be painful, with a moderate quantity of water in the tunica vaginalis; both patients had been advised by myself and other gentlemen of the profession, either to let them alone, or to have the whole disease removed at once by castration: they both applied to advertising operators, who either from ignorance, or a worse motive opened them; the pain and other symptoms which followed proved fatal to one, and rendered castration immediately necessary to the other.

lest the patient should not only be disappointed in his expectation of a cure, but experience other inconvenience which he had no apprehension of: whereas in the true simple hydrocele, neither patient nor surgeon have any reason to be uneasy<sup>w</sup>.

Upon the whole, as just definitions, and accurate distinctions of diseases are very necessary toward understanding them rightly, as well as toward finding out the most proper method of attempting their relief; it appears to me to be much better to consider this state of these parts as it really is, viz. as an effect of a diseased testicle, and not as a hydrocele; by which means we shall affix two distinct ideas to two very different disorders.

I must desire that what I have hitherto said may be considered as relative to that kind of disease which affects the body or vascular part of the testicle, and not to an enlargement or induration of the mere epididymis; these are very different complaints,

<sup>w</sup> See also in Hildanus an instance of the bad effect of dividing the vaginal coat of a true sarcocoele. “Inciso scroto plurimum effluxit aquæ, hinc primo subsedit scrotum, post paucos tamen dies secutus est dolor, vehemens inflammatio, et cancrum ulcus maximeque malignum, quodque adeo impetuose adjacentes partes occupavit, ut ipsius malignitas nullo modo arceri possit, sed intra paucos dies maximo cum cruciatu e vita decessit. Hildanus.

plaints, both in their nature and consequences ; the former is a disorder of the whole body of the testicle, and not unfrequently terminates in a painful cancer ; the latter comprehends the epididymis only, and very seldom gives any material trouble.

Every practitioner knows, that after a venereal hernia humoralis as it is called, an induration and enlargement of the epididymis is often left, and remains for years, nay sometimes for life, without giving the patient any uneasiness ; an hydrocele may be formed in the vaginal coat of a testicle so circumstanced, but such state of the epididymis must not be regarded as constituting a diseased or schirrous testicle, or as requiring any particular attention in the treatment of the hydrocele, which may be tapped, or even laid open for a radical cure with great safety, notwithstanding such state of the epididymis. It is indeed a matter of great consequence to distinguish clearly the true simple hydrocele, from all those diseases to which it may be thought to bear some resemblance, by affecting nearly the same parts, and with which it may accidentally be combined ; the accounts to be obtained from patients of

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the origin and progress of their disorders, are in general so imperfect and unsatisfactory, that they are more apt to mislead than to inform ; it is to the anatomy of the parts, and to the symptoms of diseases, that we must have recourse for satisfaction and certainty ; these well understood and attentively considered, will seldom deceive. On this account I hope to be excused putting together in one paragraph those marks or characters of this disease, which have been mentioned unconnectedly in some of the preceding.

The true simple hydrocele of the tunica vaginalis, is generally formed very gradually, as it consists of a fluid which by not being properly absorbed is gradually accumulated ; while it is forming, it gives no pain, nor hardly any uneasiness ; it affects the scrotum and dartos in no other manner than by distending them ; as the sacculus fills, the testicle becomes more and more obscure, and when it is tolerably distended cannot be felt at all ; all parts of the general tumor palpably discover a fluctuation of water, but the posterior the least ; in those from whom the water has never been drawn the swelling is generally tense, and not very compressible ; it does not pit, is perfectly

perfectly indolent, and of uncertain figure, being sometimes round, sometimes pyriform, and sometimes oblong; it produces no obstruction to the fœcal discharge from the intestines, nor any symptoms arising from any affection of any of the viscera; it is incapable of reduction, and however large the tumor may be below, its upper part most frequently admits a very distinct feel of the spermatic process; it is not affected by the sneezing or coughing of the patient; change of posture makes no alteration in it; it is not attended with heat of skin, acceleration of pulse, nor any febrile symptom; the only uneasiness it gives is from its weight and size; and the testicle within it is in a soft, natural, sound state.

Before I give an account of the methods proper to be used for the relief, or cure of this disorder, it may not be amiss to mention that there have been instances of its dissipation; of which the two following have fallen within my own knowledge.

C A S E X.

A Gentleman about 45 years old, consulted me on account of a swelling in the scrotum, which was not very large,

but plainly contained a fluid ; and was so circumstanced in other respects, that I made no scruple to pronounce it a hydrocele of the tunica vaginalis, and advised him to have the water let out.

As it was not very troublesome, he did not choose to have any thing done to it then, but went away, saying I should see him again soon.

He took the opinions of two other gentlemen of the faculty, both of whom told him as I had, that his swelling was produced by water, and advised him to have it discharged by puncture.

At the end of half a year he came to me again, with the scrotum full and of a pyriform figure, but so large as to be very evident through his breeches. I would have tapped it immediately, but as he had never seen any thing of that sort, I could not convince him that it would not confine him the next day ; and as he was under a necessity of going into the country in a day or two, he chose to defer it till he returned.

I saw no more of him for near two months, when he called upon me again, and showed me his scrotum perfectly empty.

Taking

Taking it for granted that he had been tapped, I asked who had done it for him, he told me, that before he could finish the business for which he went into the country, he was seized with a severe fit of the gout, for the first time in his life, which confined him to his bed for six weeks, during which his swelling totally disappeared. It has not returned since, which is more than seven years.

C A S E XI.

A Middle aged man shewed me a large hydrocele of the vaginal tunic, which had been near two years collecting, but had never been let out: I advised him to have it done soon, and he appointed the next morning.

In his way home he got fuddled, fell down into the area of an empty house, and in his fall struck his scrotum against a piece of scaffolding. In the morning early he sent for me; I found him in bed, with a great ecchymosis under the skin of the scrotum, which was also much swelled and painful.

I would have persuaded him to have permitted me to let out the water, thinking  
G 3 thereby

thereby to take off part of the tension; but he would not, and I was obliged to have recourse to fomentation, pultice, &c.

In about a fortnight all the ecchymosis was gone, and all the swelling from the sound side of the scrotum; and both my patient and myself thought the hydrocele considerably less than before the accident: accordingly we persisted in the same method, and in about three weeks more it totally disappeared, and has not returned since.

I have several times tried the same means but have never succeeded.

THE methods of cure in the hydrocele of the tunica vaginalis, though various, are all reducible under two general heads or intentions; the palliative, or that which pretends only to relieve the disease, in present, by discharging the water; and the radical, or that which aims at a perfect cure, without leaving a possibility of a relapse: the end of the first is accomplished by mere perforation of the containing bag; that of the latter cannot be obtained unless the cavity of that bag be  
abolished,

abolished, and no receptacle left for a future accumulation of fluid : the former may be practised at all times of the patient's life, and almost in any state of health, and habit ; the latter lies under some restraints from the circumstances of years, constitution, state of the parts, &c.

The common bleeding lancet, and a small trochar, are the instruments with which the perforation is made in the palliative cure ; and it is a matter of very little importance which of the two is used.

The place for making the puncture is the anterior and inferior part of the tumor, for reasons given at large in p. 75 ; and which therefore need not be repeated here.

The lancet having the finer point gives less pain, and in general succeeds as well as the trochar ; but if the tumor is not firmly grasped above, and held steady when the tunica vaginalis begins to collapse, the discharge will stop, and the water insinuate itself into the cells of the dartos.

If the trochar is used, the cannula secures the exit of all the fluid without a possibility of its deviating ; but whether the puncture be made with the one or the other, the more tense the tumor is made, the more

easily will the instrument pass, and the less pain will it give.

It was a custom formerly, after performing this operation, to make use of fomentation and discutient applications, upon a supposition that by such means a return of the disease might be prevented ; and among the old writers are to be found the forms of medicines to be applied to the groin and process to prevent a future descent of the fluid : but experience and anatomy having proved the falshood of such a supposition, and the uselessness of such applications, the generality of the present practitioners content themselves with a bit of lint and plaster, and a bag-truss, and give the patient no farther trouble.

In most people the orifice heals in a few hours, like that made in blood-letting, but in some habits, like that also, it sometimes inflames and festers ; this is generally superficial only, and is quieted by any simple dressing : but sometimes it is so considerable, and extends so deep, that it affects the vaginal coat, and accidentally proves a radical cure.

Whether it arose from fear of wounding the testicle in the operation, or from a supposition that while the quantity of water  
was

was small, it was more likely to disperse, or that while there was but little fluid they did not think the disease sufficiently characterised, or perhaps from some other reason which they have not given us, but many writers of good authority, and among them Mr. Serjeant Wiseman, have forbid the puncture in an adult, while the quantity may be supposed to be under a pint; which restriction is still scrupulously attended to by many, to the no small trouble and inconvenience of those who carry the disease about them. This appears to me to be so far from being a necessary caution, that when there is sufficient quantity to keep the testicle free from the instrument, I do not know any one objection which can be made against early puncture; the single point on which this argument does, or ought to rest, is this, whether the absorbent vessels by which the extravasation should be prevented are more likely to reassume their office while the vaginal coat is thin, and has suffered but little violence from distention; or after it has been stretched too often, or perhaps twenty times its natural capacity, and like all other membranes is by such distention become thick, hard, and tough: for my own part, I think the probability

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bability so much on the side of the former, that I should never hesitate about letting out the water as soon as ever I found that the puncture might be securely made; and from what has fallen within my own knowledge, I am inclined to believe that if it was practised more early than it generally is, it might sometimes prevent the return of the disease.

All the other methods of treating this kind of hydrocele, except the puncture, are either originally intended to obtain a radical cure, or having been often productive of such, are by different people ranked sometimes among the palliative, and sometimes among the radical means.

In most of the antient writers are found directions for the cure of this disease by seton, tent, canula, caustic, cautery, ligature, injection, and incision, some of which are adopted or preferred by one, and some by another; according to the theory which they entertained of the disorder, or the benefits which they had seen accidentally to arise from one or other of the methods.

The seton, the tent, and the canula, were originally meant either to palliate, or were used upon a supposition that the fluid was in itself noxious, that the general habit

bit of the patient was relieved, and many other disorders prevented by its being deposited in that part; and that its cure ought not to be rashly attempted, nor hastily executed<sup>\*</sup>.

The caustic, cautery, and ligature, were devised to prevent the supposed descent of the water from the abdomen into the scrotum. And the injection was calculated to constrict and close those breaches in the lymphatics which were thought to have produced the disease.

Some of these are now quite laid aside, the original reasons for their invention and use being found to be false and groundless; of this kind are the cautery, ligature, and injection: the water is now known to be collected in the part where it is found, and not to fall into it from the belly; and tho' an obstruction in the lymphatic vessels of the spermatic process may prevent the absorption of the fluid from the cavity of the vaginal coat, yet no breach of them can possibly produce the disease in question.

The original reasons for the use of the seton, the tent, and the canula, viz. the noxious quality of the fluid, and the necessity of a gradual cure, are now also known  
not

<sup>\*</sup> See Hildanus, Fallopius, Schenkus, &c. &c. &c.

not to be true, and therefore though these, or methods not unlike to these, still continue to be used by some of the present practitioners, yet it is with another immediate view, and upon different principles; no intention of prolonging a cure, or of making a drain for the prevention of other disorders, but merely to abolish the cavity of the tunica vaginalis, by procuring an adhesion or union of that membrane, with the tunica albuginea, or proper coat of the testicle.

This is the only rational intention which can be pursued by any of these means; for the disorder being perfectly local, and the tunica vaginalis most commonly thickened by having been much distended, unless the absorbent vessels can be again restored to a capacity of doing their duty (a thing which does not very often happen) the arteries will continue to exale new serum into the cavity, and the hydrocele be constantly maintained.

To obtain this end two different methods are proposed, by one of which an attempt is made by means of a small wound to raise such a degree of inflammation as shall procure an union of the two coats with each other; the other by means of a larger and more free incision, converts the  
cavity

cavity of the vaginal coat into a hollow ulcer, which being digested is to be filled up with new flesh, and the cavity of the sac thereby abolished.

The first, or union of the two coats with each other, has often been found to be the effect of such means as were designed to procure a temporary relief, or what is called a palliative cure; it sometimes follows the simple puncture with the trochar or lancet, the antient method of letting out the water very frequently produced it<sup>y</sup>, and the seton, the tent and the canula occasioned it so often, as to be ranked by many among the proper methods of obtaining a radical cure.

The three last were certainly designed at first to discharge the water gradually, and to continue such a drain from the parts where it had been collected, as might prevent any mischievous consequences attending the removal of the local disorder; but the inflammation which supervened often producing a cohesion of the sacculus to the surface

<sup>y</sup> This was by making first an incision of some length thro' the scrotum and dartos, so as to lay bare the tunica vaginalis, and then to make a puncture in the latter. Brunus and Theodoric say "*Curatio ejus est ut incidatur cutis testiculorum sectione ampla secundum longitudinem ejus, dein perfora et aquam extrahe.*" And the same directions are given by many others.

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surface of the testicle, what was originally designed for a palliative remedy soon came to be used with intention to obtain a perfect cure, and has with little alteration been continued into the present time.

The means are indeed somewhat different from each other, but the intention with which they are used is the same in all, viz. to raise such a degree of inflammation in the tunica vaginalis, and in the albuginea, as to occasion a cohesion of them with each other; and leave no cavity between the inner surface of the former and the outer one of the latter <sup>z</sup>.

If

<sup>z</sup> Many of the old writers have given directions for passing the seton, and for introducing the tent, either of lint or sponge, and the canula of silver or alder. Gulielmus e Saliceto, having first proposed the use of external applications, says, “ Si hac via non consumitur aqua, tunc perfora burfam cum phlebotomo tuo acuto, et extrahe aquam non subito totam, sed partem, et pone in foramine illo tentam lineam vel stuppeam, aut spongiam, ut posses de die in diem aquam extrahere; et nota quod hujusmodi ægritudo multoties recidivat, et si sic, semper redeas ad perforationem antedictam; et via ista, et modo perfecte curabitur.”

Fabritius ab Aquapendente speaks of the tent as frequently used by him in the mixed case of hydrocele and sarcocoele or diseased testicle; though by the account he gives of his success it is pretty clear that he used it in the simple hydrocele only. “ Si carnosâ simul et aquosa sit hernia, ego talem adhibeo curam. Seco cutem et incisionem facio exiguam, et in loco potius altiori quam in fundo, inde turunda imposita cum digestivo et pus movente medicamento

If it was absolutely in our power to determine the degree of inflammation to be excited

mento procedo neque unquam totum pus extraho, sed perpetuo bonam partem intus relinquo, quod sensim carnem corrodat et ita sanat." An adhesion of the vaginal coat with the surface of the testicle must frequently be the consequence of such treatment in the case of a simple hydrocele; but whoever has seen much of the disease properly called sarcocoele, will not be inclined to believe it often capable of such rough treatment, at least not successfully. The same method of practice has been adopted by Ruysch in the simple hydrocele, "Sanari quidem valet id mali pertuso scroto, ope instrumenti trochart dicto vel lanceola phlebotomica, ut aqua vulnere exeat; sed cito plerumque descit malum."

"Si autem curationem aggredieris aperiendo scrotum a parte superiori ad latus, tumque vulnus turunda oblonga, unguento rosaceo mercurio precipitato rubro inuncto oppleveris, donec lenis inflammatio eique succedens suppuratio parva membranulas stillantes putrefecerit, tuque eas tenaculo eduxeris." &c.

Professor Monro has also proposed a method of cure upon the same principle, but much better and more likely to procure the one thing designed, the *lenis inflammatio* as he employs no cathartic medicines. His words are, "Considering how readily contiguous inflamed parts grow together, and how many instances there are of people having a radical cure made of this hydrocele by inflammations coming on the part, it would seem no unreasonable practice to endeavour a concretion of the two coats of the testicle when they are brought contiguous, after letting out the water through the canula of a trochar, by artfully raising a sufficient degree of inflammation. This to be sure, must be done cautiously, and so that the surgeon can reasonably expect to be master of the inflammation, and therefore the application of all irritating medicines, the operation of which he could not immediately stop, or any single mechanical effort,

excited by these means, there would not be the smallest doubt of their utility, and of the preference which would therefore be due to them ; but this is far from being the case ; for tho' sometimes it rises no higher than what serves the intended purpose, and gives but little pain or trouble, yet it sometimes greatly exceeds that due degree, and produces acute pain, symptomatic fever, large suppuration, sloughs, &c. all which protract the cure much beyond the patient's expectation, and render the case as troublesome, as in any of those methods whose effect is much more certain : while on the other

fort, the effect of which he could not be sure of, are not to be employed. Suppose the canula of the trochar was to be left in, by the extremity of it rubbing on the testicle an inflammation might be gradually raised ; the cause of which might be taken away as soon as the surgeon thought fit." &c. *M. Essays.*

This method with some alteration I have once or twice used with success. Being afraid of the too great irritation which the edge of the canula might excite, I have left it in, with a piece of Bougie within it of such length as to exceed its extremity about a quarter of an inch.

Of all the methods of using a tent in this case, I think this is the best, as the canula secures its passage into the cavity of the vaginal coat ; which the collapsing of that tunic and the loose texture of the dartos, renders somewhat difficult without this help. But though I have once or twice succeeded in this manner, I have much oftener been frustrated ; sometimes it has proved absolutely ineffectual, and at others I have seen it raise such disturbance as to render it absolutely necessary to lay the whole open before a cure could be obtained.

other hand, it sometimes falls far short of the intention, and raising an inflammation and abscess in the cells of the dartos only, ends in a cohesion of that membrane with the outer surface of the tunica vaginalis, leaving its cavity just as it was, and just as liable to be again filled.

If the first happens to be the case, that is, if only so slight a degree of inflammation is raised as occasions but little tumor, moderate pain, light symptomatic fever, small suppuration, and an entire union of the two membranes, the event is very fortunate, and a very troublesome disease is perfectly cured by very easy means.

If the second state which I have mentioned is the consequence of the attempt, that is, if the inflammation rises high, the scrotum swells much, the parts slough deep, and largely, and a plentiful suppuration is preceded by a brisk symptomatic fever, the confinement, the hazard, pain, and trouble, are full equal to what attend the more certain methods of obtaining the same end.

And if the event should prove to be what was mentioned in the third place, viz. if such cohesion between the tunics is not brought about, but only a superficial in-  
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inflammation raised between the skin and dartos, all the trouble, pain, confinement, &c. are submitted to for nothing, the vaginal coat being left entire, its cavity will sooner or later be again filled with water, and the disease be renewed.

Which of these three shall be the event no man can determine, because no man can direct. Under the same external appearances, different people are more or less prone to inflammation and fever; the confinement of matter by means of too small an opening, will in some habits make strange havock in a very short time; and if a large opening, and plentiful suppuration, must at last be submitted to, the method by a large incision at first is preferable, as the cure is more certain and the loss of time less. Different circumstances in the patient will render one method preferable to, and more likely to succeed than another; but whenever a cure is attempted by any of these means, the uncertainty of the event should always be made known beforehand, and the patient should be apprised of what may happen.

All the methods hitherto mentioned are calculated to produce a perfect cure, without making a large wound, and without carrying

rying the appearance of an operation ; those of which I am now to speak, are intended to obtain the same effect, but by means of a larger opening to render it more certain ; these are called the cure by caustic, and the cure by incision, both which require a closer confinement to bed, and the observance of a stricter regimen.

The method by CAUSTIC is this.— A piece of the common paste caustic rather less than a finger's breadth, properly secured by plaster, is applied the whole length of the anterior part of the tumor.

The eschar thus made is intended to penetrate through the skin, dartos, and vaginal coat ; and either by the natural separation of it, or by its being divided, to give discharge to the water ; and at the same time to make so large an opening into the latter, as to afford an opportunity to the surgeon of applying such dressings to the inside of it as shall generate new flesh, and fill up its cavity.

It is hardly necessary to say any thing of the method of dressing in this kind of cure, it being obvious that such only as are soft, easy, and of the digestive kind, can be proper for membranes so easily irritable, and

so subject to inflammation, that an emollient pultice, with fomentation, &c. must be necessary for the separation of the eschar in the inflamed scrotum, that the body should be kept open, and any feverish symptoms resisted by proper medicines and regimen.

If the tumor was large and full, and the containing parts very much on the stretch, the caustic will generally do its duty, that is, it will penetrate through the vaginal coat, and then either the natural separation of the eschar or the division of it with a knife will procure a discharge of the water, and give admission to proper dressings: if the skin was not much on the stretch, but still retained a degree of rugosity, and consequently the dartos or cellular membrane between it and the tunic was not much compressed, the caustic will not penetrate so as to affect the vaginal coat at all, and it will still be necessary either to cut thro' it in the same state and manner as if no caustic had been applied, or to have recourse to a repetition of escharotic applications, which must necessarily prove both irksome and tedious.

The pain attending the first application of the caustic, is to some few people but slight, but to the generality it is full equal

to that of the knife; and in every one, of a much longer duration. If it does not penetrate through the tunica vaginalis, that membrane must be divided by a cutting instrument, in the same manner as if no caustic had been applied; and such incision will necessarily be attended with its proper symptoms, that is, those symptoms which always accompany the division of a firm sensible membrane: and this must frequently be the case, unless the patient will wait till the tunic is very full, and stretched thereby to a certain degree<sup>a</sup>. Nor can we always confine the caustic from spreading wider than is intended, and consequently producing a sore much larger than is necessary, not to mention the extreme tenderness of these sores, nor the inconvenience arising from great loss of substance in the skin of the scrotum.

Upon the whole, tho' the cure by caustic seems to spare the patient the apprehension of an operation, and requiring no dexterity in the surgeon, may on those two accounts, be by some thought preferable; yet whoever expects by it to obtain a perfect cure upon much easier terms than by that of

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incision,

<sup>a</sup> In which case the hazard of mortification, either from caustic or incision, will in some habits be still more imminent.

incision, will frequently find himself deceived ; that is, he will often find the fever and all the inflammatory symptoms, full as high in the former as in the latter, the sore as painful, and in every respect as troublesome, his attention and care to obviate mischief as much required in the one as the other, and the confinement generally much longer in the caustic than in the incision.

One of the methods made use of by the ancients to let out the water from an hydrocele, was, as I have already observed, by making a free division of the scrotum and dartos, and having by that means laid the tunica vaginalis bare to perforate it and discharge the contents.

This sometimes produced a perfect cure in the first instance, and sometimes proved only a temporary relief ; that is, if the opening made in the vaginal coat was small, and united again immediately, the cavity of it was again filled with water, but if the puncture instead of uniting again immediately, inflamed or became sloughy, which the free incision of the skin must necessarily contribute to, such an adhesion sometimes followed between this coat and the albuginea, as totally obliterated the cavity of the former.

Tho' this happened sooner or later in many instances, yet the cure was as it were the effect of accident, and therefore recourse was had to another method, which, tho' upon the same principles, was more certain in its effect.

This was a division of the vaginal coat through its whole length, sometimes by mere simple incision, and sometimes by removing a part of it.

Paulus Ægineta, Albucasis, Severinus, and many others of the best antient writers, have given a particular account of this operation ; and it has in all times been practised by some, though in general it has been decried and dreaded.

In what manner, and with what degree of caution it may have been executed by those who have given so bad an account of it, I know not, but from what I have seen and practised, I am very certain that the ills attending it have been much exaggerated, that under proper cautions and restrictions it will be found to be practicable with perfect safety, and ought by no means to be laid aside.

All the other methods, the caustic excepted, are fallible, but this properly executed I never saw fail ; the only doubt

which can arise concerning the practice of it is, whether it is necessarily attended with more hazardous circumstances than any of the others. Some writers of very good character have appeared very averse to it, and have ascribed to it such symptoms as are indeed very alarming, but which I have seldom seen attend upon it: I have performed it, I am sure I may without exaggeration say, scores of times, and never saw the patient's life in danger, nor that it proved fatal but twice; in one of which cases there were some circumstances that might in some measure account for the event. I never, but in those two instances saw the symptoms run so high as to be at all alarming to any body accustomed to matters of this sort; or not to give way to the treatment proper on such occasions. I would be extremely cautious how I advanced any thing of this kind, which repeated experience had not proved to me the truth of; as it may possibly influence the judgment and practice of some of those, who from their not having frequent opportunities of seeing business, are under a sort of necessity of taking the advice and opinion of such as have: in things of this kind prejudices should not be conceived from

a few examples, reiterated experiment only should determine the judgment; and it is from such repeated trial that I venture to say that this operation in proper cases and under proper restrictions, may be practised with perfect safety, and greatly to the patient's advantage. From what I have seen of it, I am inclined to think that some of those gentlemen who appear so averse to it, have performed it on improper subjects, or having imbibed a prejudice against it, have been unnecessarily alarmed at symptoms which in another case would not have alarmed them at all; and that others not making use of the proper precautions, have suffered their patients to get into circumstances of hazard which they might have prevented, but which are therefore more justly chargeable on them than on the operation.

Advanced age, an apparently bad, or cachectic habit, a disposition to anasarous or leucophlegmatic swellings, an intemperate life, the custom of drinking spirituous liquors, and any such general disorder in the constitution as the symptomatic fever is likely to exasperate, are general and just objections to it; any disease of the glandular part of the testicle, its coats, or spermatic

spermatic process, an old irreducible rupture, a diseased state of the urethra, prostate gland or neck of the bladder, are, while they continue, good reasons for not performing it : but *consideratis confiderandis*. In young healthy people this way of obtaining a radical cure is, for several reasons, preferable to any other.

The method of performing it is this. — Having appointed an assistant to grasp the tumor, and thereby render it tense, a puncture must be made in the lower and anterior part of it, through the scrotum and tunica vaginalis at once ; if the operator intends to finish the incision with his knife, he should make his puncture large enough to admit the end of his fore-finger, which he should immediately introduce before the water is discharged, and the vaginal coat collapsed ; and upon that finger continue his division of that whole tunic, and of the scrotum which covers it. If he intends to use the probe-scissars, ( a more tedious, as well as a more painful method ) he may make his first puncture with a lancet, and then introduce his scissars.

Upon the first division the water immediately rushes out, and in its passage some of  
it

it insinuates itself into the cells of the dartos, while the vaginal tunic subsides and collapses: if the first puncture is made small, the insinuation of the water into the dartos, and the collapse of the tunic, render it difficult to pass the knife or scissors into the aperture in the latter, and unless that is done, the scrotum only will be divided, and both patient and surgeon must undergo double trouble. This may always be prevented by making the first opening large enough for the introduction of the fore-finger, and upon that all the rest may very easily and very safely be executed<sup>b</sup>.

When the incision is finished, the testicle covered only by its tunica albuginea appears, and if the division is begun or continued very low, generally thrusts itself out  
upon

<sup>b</sup> Some people, being terrified with the accounts which they have received of this operation, and being yet desirous of procuring a radical cure, have thought to avoid some of the hazard by making the incision small: this is certainly a great mistake; an incision of such size as not to come under the denomination of a puncture, and to admit the introduction of dressings into the cavity of the sacculus, though it may not be attended with all the benefit derivable from a free division, will most certainly be accompanied with all its inconveniencies.

If the incision is intended to produce a perfect cure, it should be made the whole length of the sacculus, by which means the admission of dressings will be easier, the suppuration more free, the inflammation less, and the cure more certain.

upon handling the parts; this should be gently replaced, and if the vaginal coat is not much thickened by having been long distended, nothing more need be done than having separated the divided lips, to lay a little fine unformed lint lightly into its cavity<sup>c</sup>, then covering the whole with a large pledgit, tie the scrotum up in a bag-truss, with some soft bolsters of tow.

The operation when properly done is not tedious, but may be executed in a very few seconds; requires no other violence than the mere division of the parts, and if that be made with the knife rather than scissars, it will produce a very sensible difference to the patient's sensation.

He should be immediately put to bed, lose sixteen ounces of blood from his arm, and take a grain of extract thebaic. which in case of pain or restlessness, should be repeated every six, eight, or ten hours, as occasion may require.

After ten or twelve hours are past, the whole scrotum and pubes should be covered with a warm emollient pultice<sup>d</sup>, spread  
thick;

<sup>c</sup> By no means to fill or distend it, or make any pressure on the testicle, whose tunica albuginea is easily irritated.

<sup>d</sup> The impalpable farina seminis lini, put into boiling water, with a proper quantity<sup>y</sup> of fresh butter or ung. sambuci,

thick; and if the pulse rises or becomes hard and full, more blood must be drawn off, and absolute quiet, and a low regimen enjoined.

On the next day the parts should be well fomented, and the pultice renewed, at least twice, the edges of the incision should be smeared over with a soft, oily digestive, but no attempt either now, or in future should be made to remove any part of the lint applied to the inside of the tunic; this should be suffered to remain till the suppuration having loosened it in all parts, it tumbles out<sup>e</sup> without pain or trouble.

It can hardly be necessary to observe, that in this, as well as in every other operation which may be attended with symptomatic fever, glysters and soft emulsions in case of costiveness, the sal absynth. mixture, or something of that sort, if the skin be hot and dry, and opium and phlebotomy in case of pain or hard and full pulse, will be required.

By these means the violence of the symptoms is either absolutely prevented, or very  
soon

ci, is the easiest made; and is at the same time the neatest, softest, smoothest, and most relaxing application of the kind, and has nothing offensive in its flavour.

<sup>e</sup> A circumstance which should always be carefully attended to in many other cases, but particularly in the dressing a stump after amputation.

soon taken off, and a kindly suppuration established.

The general hardness of all the parts about, the thick tumid lips of the incision, and the enlargement of the whole scrotum, have for the first four or five days a disagreeable appearance, and the kind of discharge, which at that time is only a gleet, seems very unequal to a reduction of such a degree of tumefaction; but when the febrile symptoms are gone, and a suppuration is once begun, which almost always happens about the fifth or sixth day, let the surgeon have patience, and not interrupt it by improper dressings, let him keep up the perspiration by warm fomentation, dress the incision with the softest, easiest, oily digestive, and cover the whole with a warm relaxing pultice, and I will venture to assert he will soon see every thing in a good state; he will see the inflammation disappear, the induration resolve, and all the tumor in due time subside: whereas if he neglects these general cautions, or under a notion of assisting digestion, instead of a soft lenient balsam, will go to work with precipitate and other irritating or escharotic dressings, he will continue all the disagreeable appearances, and most likely

*the* HYDROCELE, &c. 111

likely bring on again a painful inflamed sore, with all its consequences, but for which he only in such case is accountable <sup>f</sup>.

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<sup>f</sup> The great induration which almost always attends inflammations of these parts, has I suppose been the reason why so many writers have advised, and so many practitioners still use such medicines as are truly of the escharotic kind, under a notion of dissolving the induration, and removing the obstruction.

I would be very cautious how I made objection to what so many have recommended, and in a matter of speculation merely, would rather doubt my own judgment than that of some others; but as this is a fact of which I have been convinced too often to be mistaken, I cannot help saying, that it appears to me that all the applications of this kind, even the mildest of them the red precipitate, are often very improperly used, that they give unnecessary pain, and really retard what they are used to expedite.

Inflammatory hardness and tumor is not peculiar to the scrotum upon its being wounded, it is common to all parts of similar structure, that is to the adipose and cellular membrane all over the body.

When parts of such structure are irritated by a wound, they cannot resist a sudden influx, the consequence of which for a time, must be obstruction, tumor, and induration; but one moment's reflection upon the natural structure, and the state of such part before such irritation was made, or such wound inflicted, will prove that ease, relaxation, and gentle suppuration are the intentions proper to be pursued, which intention all those medicines that either irritate, give pain, or destroy, must counteract.

The breasts of women, the axillæ of both sexes, the parts surrounding the intestinum rectum, the cellular membrane in the perineum, under the skin of the penis, and in several other parts of the body are subject to this kind of alteration whenever they are wounded; but the induration which necessarily attends such irritation, is very unlike to a glandular hardness, and requires very different treatment: in the latter,

In about five or six weeks the scrotum is generally reduced to pretty near its natural size,

ter, a destruction of parts is perhaps sometimes necessary, and escharotic applications therefore proper; but in inflammation and induration of the cellular membrane in consequence of its being wounded, mere relaxation is all that is required, and whatever relaxes, gives ease, and appeases the inflammatory tension, which always attends these cases, will most expeditiously and most certainly produce it.

The most convincing proof of the truth of this doctrine may be drawn from that case, which of all those that affect this kind of membrane, is generally the most troublesome, I mean what are called fistulæ in perinæo. In these the induration and enlargement of the parts about is sometimes so great as to alarm those who see them but seldom; hard callous excrescences, deep and long sinusses with small orifices, constant pain and irritation from the lodgment of urine and matter, a symptomatic fever of the hectic kind, and a difficulty either of retaining the urine in the bladder or of discharging it from it, make a part of the most frequent characteristics of this kind of disease. And yet even these cases, terrible as the appearances are, do frequently admit of relief and sometimes of cure without any destruction of parts, or the use of one escharotic application. Let there be a free incision made through all the hard and hollow parts, to allow room for a plentiful discharge, and for the application of soft digestive medicines; let the whole be kept covered with a warm relaxing pultice, no irritating or caustic dressings applied, no matter confined by cramming in a quantity of lint, nor any internal remedies exhibited, which under the name of deobstruents, increase the velocity of the circulation, and waste the patient's strength by purging, sweating, &c. and let the urethra be gradually enlarged by a bougie, and all these disagreeable appearances will often vanish; the hardnesses will gradually subside as the suppuration increases, a kindly incarnation will spring from the divided parts, and the cicatrix will be small, soft and moveable;

size, and when the wound is quite healed, the scar is a simple line, which is a thing of

able, very unlike to that which is always the consequence of even the most successful use of escharotic applications.

This is a matter of much greater importance in practice than it is generally supposed to be; the symptomatic fevers which are either produced or maintained by injudicious and painful dressings, are more numerous than they are thought to be; not to mention the loss of time which they must always occasion, and the deformities which now and then ensue from them.

The surgery of many of our forefathers was coarse and rough, and some of the practitioners affected a brutal kind of rusticity; the old maxim, "*dolor medicina doloris*," was so generally received and practised, that the surgeon paid too little regard to the acute sensation of his patient, and the common people thought they were neglected if they were not tortured. Lord Bacon's most excellent advice, "*inveniendum quid natura ferat aut faciat*," was but half remembered; they tried very sufficiently what nature would bear, but very seldom waited to see what she could do: under a mistaken notion of going to the bottom of wounds, abscesses, &c. they stuffed and crammed them full of lint, which lint was generally imbued with medicines of the irritating or escharotic kind, with intention to promote digestion and dissolve hardness.

That this is no exaggeration may be learnt from their own accounts; for tho' some few ventured to disregard authority, to lay aside a number of useless, or painful applications, and to aim at curing, by shorter and easier methods, yet the general practice was what I have just said, and is still so with not a few.

All dressings are in fact foreign bodies, and when they are either injudiciously crammed into parts of quick sensation, or are in their nature painful and irritating, are foreign bodies with the addition of another mischievous quality:

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of more consequence to the patient's ease  
than perhaps may at first be imagined.

This

lity : where destruction of parts is the proper intention, the sooner it is executed the better, and the necessary pain must be complied with ; but in the application of dressings to the inside of abscesses, to hollows made by the removal of diseased parts, to large sores attended with hardness and inflammation of the common membrane, indeed in all cases where suppuration is necessary, they cannot be too light, soft, and easy, all that we have to do being not to obstruct nature in the execution of an office which she is generally fully equal to, and in which we can lend her very little real assistance beyond that of removing impediments out of her way.

In short they should both in the matter of which they are composed, and in their manner of being applied, be made to coincide with the proper curative intention ; where destruction of parts is intended they should be such as will execute that purpose soonest, and with the least possible fatigue to the patient ; but where ease, a free circulation, and a future suppuration are necessary, they should be soft, lenient, and relaxing, and applied in such manner as to be no burden, nor resist those efforts which nature always makes towards restoring dilated parts to their natural state and size ; such are necessary and right, and conducive to a cure ; but all those which irritate or give pain unnecessarily, those which make a painful distention and hinder the operations of nature, either in the act of suppuration, or in the restoration of distended parts to their natural capacities, are absurd and wrong, tho' rendered venerable by the sanction of all antiquity.

In the particular case of a divided tunica vaginalis, that degree of thickness and hardness which it sometimes acquires by long distention, is urged as a reason for the necessity of caustic dressings ; to which I cannot agree, having often experienced the contrary. That membrane, like all others of the exangous kind, is difficult and slow of digestion, especially if altered by disease ; but that it will in time become  
sloughy,

This is all which is necessary when the sacculus containing the water is tolerably thin; but if by long distention it is become thick and hard, it cannot contract itself upon the discharge of its contents, and being difficult of digestion makes a troublesome part of the lips of the fore: in this case, the best way is to remove a small part of it on each side of the incision, at the time of the first division, which the loose texture of the dartos renders very easily practicable.

A knife will execute this with the most expedition and ease; the method proposed by Mr. Douglass of doing it at several times with the probe scissars, is tedious and painful, nor is the removal of an oval piece of the scrotum, as advised by that gentleman, at all necessary; on the contrary, the more loose that part of the scrotum is which covers the testicle when deprived of its vaginal coat, and the more it is capable of corrugation, the better for the patient on many accounts.

There is one more circumstance relative to this operation, which seems to me to be

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sloughy, suppurate, digest and produce a kindly incarnation by the mere use of simple easy applications, and without that of any escharotic, (not even the red precipitate) I have often and often experienced.

of consequence enough not to be omitted. Which is, that when the quantity of water is large, and the tunic and scrotum much upon the stretch, it is better to discharge the fluid by puncture, and not perform the operation for a radical cure till a fresh accumulation has again moderately distended it.

The inflammation necessarily consequent upon the division of these parts, seizing them just after they have been so much on the stretch, and so suddenly let loose, may be, and I think I might say that I have seen it, prove productive of worse symptoms, and a higher degree of inflammation than occurs when the same parts are divided in a less distended state.

With these cautions, and under these restrictions, I never saw this method of cure prove hazardous or end fatally but twice in my life ; but I must again repeat, that the choice of an improper subject, or a neglect of the proper cautions, will render both this and the use of the caustic always troublesome, and frequently dangerous.

S E C T. VIII.

*The* HÆMATOCELE

**I**S a tumor of the scrotum, or of the spermatic process proceeding from, or caused by extravasated blood, and tho' spoken of by the generality of writers as one simple disease, is liable to such variety both of nature and of situation, as really to require to be divided into two or three; one of which is original, or may happen without the intervention of any force *ab extra*, the others are generally the consequence of a chirurgic operation.

This distinction between the different kinds of hæmatocele, appears to me to be absolutely necessary to be made by whoever would rightly understand the true nature of them; for from the cases of this disease which have come within my own observation, I am inclined to think that the general conception of it is somewhat erroneous, the prognostic ill-founded and hasty, and relief often attainable by much easier means than those which are most frequently proposed.

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If I conceive rightly of this matter the disease properly called hæmatocele is of three kinds, two of which have their seat in the tunica vaginalis, and the third in the tunica communis of the spermatic vessels.

It sometimes happens in tapping a hydrocele of the tunica vaginalis, that a quantity of clear limpid water is discharged, and the scrotum thereby perfectly emptied, but in the space of a few hours it seems to be filling again, and in a day or two is as large and as full as before the puncture was made.

Upon making a second perforation, the discharge instead of water is either mere blood, or a fluid very deeply tinged with blood. This is one kind of hæmatocele.

In passing the lancet in order to let out the water from a hydrocele of the vaginal coat, a vessel is sometimes wounded, which is of such size as to tinge the fluid pretty deeply during the time of its running out; the orifice becoming close when the water is drawn off and a plaster applied, the blood ceases to be discharged thereat, but insinuates itself partly into the cavity of the tunica vaginalis, and partly into the cells of the dartos, making in a few hours time a  
tumor

tumor nearly equal in size to the hydrocele.

This is another kind of hæmatocele, or at least produced in a different manner from the former, tho' both of them belong principally to the tunica vaginalis, and have no relation to, or connexion with the spermatic vessels.

The third consists in a rupture of a branch of the spermatic vein, by means of which the cellular membrane investing those vessels becomes more or less distended, according to the quantity of blood which is extravasated, and makes a tumor to the touch not much unlike to an omental hernia.

These three make all the species of this disease which I have ever seen, and these I have seen so very distinctly as not to have the least doubt about the existence of them all, and of their difference from each other.

The last of them, viz. that in which the effusion is made in the cells of the tunica communis, being most commonly produced by some great or sudden effort, or exertion of force, is generally submitted to by the patient as an accident, and let what will be the consequence, it is looked upon as inevi-

table; but the two former making their appearance immediately after the operation of perforating the scrotum, are by most people thought to be the effect of mischief done by the improper performance of that operation.

This is no pleasant reflection for the operator, and the strange sentence passed on this kind of disease by the few writers who have spoken of it, viz. that it is always owing to a breach in one of the spermatic vessels, and can be restrained by castration only, will not at all lessen his uneasiness.

Whoever will reflect on the original formation and production of the tunica vaginalis, the manner in which the testicle gets into it, their connexion with each other, and the disposition of the spermatic vessels in the tunica communis, may see that it is absolutely impossible for any effusion to be made from the spermatic artery or vein, into the cavity of the vaginal coat. The spermatic vessels, while within the abdomen, lye behind the peritoneum, and when they quit that cavity, and have passed thro' the opening in the oblique muscle, are enveloped in that cellular substance called the tunica communis, but have no communication

nication with the cavity of the vaginal tunic.

The spermatics may undoubtedly, like any other vessel, burst or be wounded, but in the former case the effusion will be made into the cells of the investing membrane; and with regard to the latter, an instrument piercing the scrotum distended in such manner as to authorise perforation, can never come near to, much less wound any branch of them: in this operation no vessel can be wounded but what belongs to the scrotum, dartos, or tunica vaginalis, no other being within the reach of the instrument.

The tunica vaginalis, in a natural and healthy state, is a membrane which though firm is of no great thickness, it is of a white or rather of a reddish white colour, and its vessels are no more apparent to the eye than those of the tunica albuginea; but when it has been long or much distended, it becomes thick and tough, and the vessels, especially on its inner surface, are so large as to be very visible and most frequently varicous; if one of these lies in the way of the lancet, it is sometimes wounded by it, in which case the first part of the serum which is discharged is pretty deeply tinged with blood, but that generally soon  
ceases,

ceases, and nothing more is seen or heard of it; but it also sometimes happens, either from the toughness of the tunic, or from the varicous state of the vessel, that the wound made in it does not immediately unite, but discharges blood into the cavity of the said tunic, and thereby renders a new operation necessary.

This, as I have observed before, is one species of hæmatocele, and is plainly produced by the division of a blood-vessel in the vaginal coat.

As the quantity of water in a hydrocele increases, the membrane which composes the vaginal tunic thickens, and becomes hard and tough, but the blood vessels, especially of its inner surface, are generally in proportion enlarged, and rendered less capable of resistance.

Upon the sudden drawing off the water from the over-stretched bag, and thereby removing all the counter-pressure which it made against the sides of the dilated vessels, some of them burst and shed their contents; if the quantity thus shed is small, it is soon absorbed again, and creating no trouble is not known; but if it is considerable,

nable, it produces a new tumor by again distending the cavity of the vaginal coat <sup>f</sup>.

This is the second species of hæmatocele, which like the first belongs to the vaginal tunic only, and has no concern whatever with the spermatic vessels. In both of them the cavity which had been filled with water becomes in a very little time distended with blood, and must in both, if not absorbed or dissipated, be discharged by opening the containing bag, but in neither of these can castration be ever necessary; the mere division of the sacculus, and the application of dry lint to its inside, will in general if not always restrain this kind of hæmorrhage, and answer every purpose for which so severe as well as unnecessary a remedy has been prescribed <sup>g</sup>.

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<sup>f</sup> From this cause it happens very often that the last running (if I may so say) of the water from a hydrocele when let out by puncture is bloody, all the first part having been perfectly clear; and a bloody discharge may almost always be produced upon the same occasion by pressing and handling the scrotum while the bag is emptying itself.

They who would see a very ingenious account of this kind of hæmatocele, and a very probable application of the same principle to explain some other appearances in diseases, may find it in the Edinburgh Essays, from Professor Monro the father.

<sup>g</sup> It may indeed happen that the blood of the patient may be in such a state as to be incapable of coagulation; in which case the hæmorrhage will continue from the inside of the sac  
tho<sup>o</sup>

In the third species of this complaint the spermatic vessels are primarily and principally concerned ; in this the hazard is sometimes considerable, and castration often the unicum remedium. It consists of a rupture or breach of a branch of the spermatic vein, in consequence of which, the tunica communis of the process, or the common cellular membrane which surrounds and connects

tho' it is laid open, and from all the divided parts : this is a circumstance which, tho' very hazardous, can neither be foreseen nor prevented, nor do I know in this state of the juices what benefit can arise from castration, as the discharge of blood will certainly be continued from all parts of the incision necessary for such operation, upon the same principle and for the same reason that it could not be restrained from the inside of the sac.

Such an indisposition of blood is often in chachectic habits the cause of hæmorrhage long after amputation ; sometimes from the large vessels which had been tied at the time of the operation, sometimes from all the small ones on the surface of the stump : if this want of an agglutinating quality in the juices is either not corrected, or is incapable of correction, it generally goes hard with the patient, let the operation be what or where it may ; for it is not merely the suppression of the hæmorrhage that is required, the same ill quality of the blood will prevent suppuration, produce bloody sanious gleet, gangrene, and mortification. This is an evil of which every practitioner must have met with many instances, and therefore it is almost unnecessary to mention any particular ones ; but as the common method of letting the water out from an hydrocele by puncture may possibly be thought not to be among those which such state of blood is likely to affect, I have in the 16th and 17th cases related two instances of its being so.

connects the vessels, becomes loaded with extravasated blood.

External violence will tear or wound those parts as well as all others when applied to them, and a wound inflicted here will cause the same extravasation as in any other vascular part; that which I mean to speak of in this place is not the effect of external force, but produced by sudden or great effort in pulling or lifting heavy weights, or by otherwise straining those muscles, by whose action the contents of the abdomen are compressed.

This may happen to a man whose blood and juices are in the most healthy state; it has nothing to do with the cavity of the tunica vaginalis, but is a breach of one of the spermatic vessels, and may really require castration as a remedy.

The cases of this kind which have come within my knowledge, have by the patients been mistaken for ruptures; to which the sudden appearance of the disease, its general manner of production, its look and its feel, do not a little contribute, and may impose even on better judges.

The appearance which this accident makes, and the manner in which those which I have met with have been treated,  
may

may be seen in the 18th, 19th and 20th cases; those which immediately precede being relative to the hæmatocele of the tunica vaginalis and membranes of the scrotum.

## C A S E XII.

A Healthy man about 30 years old called upon me and desired me to let out the water from an hydrocele, which operation he said had been performed upon him twice a year for some time past, by the late Mr. Bell, in Red-lyon Square, and desired also that it might be done with a lancet.

I made a puncture and let out near a pint of fluid, the first part of which was deeply tinged with blood, but soon became clear, and when I put on his plaster it did not bleed a drop.

The next morning he came to me again, told me had bled a good deal in the night, and showed me his linen, which was much stained with it; but as there was no discharge at that time, I only renewed his plaster, put on a bag-truss, and advised him to keep quiet at home.

As he remained free from hæmorrhage for some hours, he neglected my last caution,

tion, and walked about a good deal, and the next morning sent for me to look at his scrotum, which was very large and full, but without any appearance of fugillation.

I made no doubt from all the circumstances that the tumor was formed by blood, told him my opinion, and advised him if it did not dissipate by proper attempts, to have the vaginal coat laid open and thereby obtain a perfect cure.

Some time was spent in endeavouring its discussion, during which it became rather bigger and every now and then bled pretty freely from the puncture, which became spongy and would not heal.

At last finding our attempts ineffectual, he submitted to my proposition of having it laid open; a large quantity of blood was discharged, some in a state of fluidity, but, principally grumous. I made the incision no larger than just to give room to apply some fine lint to the inside of the sacculus, no hemorrhage followed, nor any other symptom or trouble than usually attends this operation, and in about six or seven weeks he was well.

## C A S E

## C A S E XIII.

**A**N elderly man who had often had a hydrocele tapped at the hospital, came one day as usual ; I pierced it with a lancet and let out the water, but was near half an hour before I could suppress an hæmorrhage from the orifice.

The next day he came again, and complained to one of my dressers that he had bled more or less ever since ; he was again dressed and advised to go to bed and keep quiet.

The third day when I was again at the hospital, he came and shewed me his scrotum, which was as full as before he had been tapped, the puncture was not healed, and upon pressure some blood still discharged from it ; he said he could not afford to rest from his daily labour, and as my week was expired Mr. Crane took him into the house under his care.

Finding the bloody discharge still continue, notwithstanding he kept his bed, Mr. Crane made a pretty free incision into the tumor, turned out a good deal of coagulated blood with his finger, and then filled the cavity with dry lint : from this  
I
time

time he had no farther hæmorrhage, and the man did very well.

In these two cases the division of a blood-vessel at the time of the puncture was pretty certain from the immediate hæmorrhage. Had the wounded vessels belonged to the scrotum, there would have been no lodgment of blood in the vaginal tunic, tho' possibly there might in the cells of the dartos; and from all the attending circumstances, I make no doubt but the extravasation came from some of the vessels of the tunica vaginalis itself: however, be that as it may, no application was made in either case to the spermatics, and the hæmorrhage was suppressed in both by the application of dry lint merely.

C A S E XIV.

A Gentleman who used to come out of Kent every fix or seven months to have a large hydrocele tapped, came to me in great alarm.

Having often had the water drawn off by puncture in London without any inconvenience, he determined to let the apo-

K thecary

thecary of the village where he lived do it for him ; the operation was performed in the usual manner, the usual quantity of water discharged, and the bag perfectly emptied.

The next morning to his great astonishment he found his scrotum near as large as before the puncture, he sent for the apothecary who made it, and who being as much surprised as himself, advised him to get into a post-chaise immediately and come to London.

Upon hearing his account, and upon seeing and feeling the tumor, I made no scruple to tell him that it was blood, and that if it did not dissipate by rest and proper applications, it must be let out ; that a simple puncture would in all probability be only a temporary relief, but that if it should become necessary, an incision would procure him a perfect cure.

All applications proved fruitless, the tumor rather increased than lessened, and as his habit and health were extremely good, and his age not an advanced one, he determined to submit to the operation, provided I would first let him see by a puncture, that the tumor contained what I suspected.

I passed a lancet into the lower part, and gave discharge to a clear florid blood, and while that was running out, by means of a probe-pointed knife, I enlarged the incision sufficiently to admit of the sacculus being lightly filled with lint.

For a day or two the symptoms were untoward, and the discharge large and bloody, but by proper care, and the help of the bark and elixir vitrioli the bleeding ceased, and every thing did well.

C A S E XV.

A Lusty healthy man about 40, who had the care of a manufacturer's warehouse in my neighbourhood, consulted me on a large hydrocele of the tunica vaginalis: the parts were so much upon the stretch, that I advised him to have the water let out immediately; he consented, and I drew off by means of a trochar, above 20 ounces, perfectly clear and limpid.

As he had carried his burden a great while and had never been tapped before, he was much surpris'd at the immediate relief, and contrary to my advice went to work directly.

The next morning he came to me again under the utmost concern, his scrotum being near half as big as before the puncture was made. I was clear from the appearance, and from all the circumstances that it was blood, and very apprehensive that it would require laying open ; an operation which his constitution and manner of living would have rendered hazardous.

I ordered him home to bed immediately, took some blood from his arm, and directed a cooling purge for the next morning ; the scrotum was wrapped in a cloth folded seven or eight times, and wetted in a solution of sal. ammon. crud. in vinegar, which he had orders to renew as often as it became dry. On the third day I bled him again, and ordered him another purge for the fourth day ; the same application was continued to the scrotum.

Finding the tumor by these means quite at a stand, and imagining that if by mending his blood any farther effusion could be prevented, what was already in the bag might possibly be absorbed or dissipated, I advised him to take a dram of the cortex every six hours, which he did for as many days, during which time the tumor visibly lessened :

lessened : this encouraged us to go on in the same manner both with regard to externals and internals, and by these means and the most perfect rest, he got well for that time, that is, all the tumor which I make not the least doubt from similar cases was caused by blood, dissipated, and several months after the bag began to fill again with water. I advised him to have it let out before it came to near the size it had been when first I saw it ; he did so, and had no more trouble with it than people usually have from the simple puncture, when the contents are merely water.

In the 14th case there was no reason to suppose any vessel wounded by the lancet, as there was no blood discharged, nor was the water at all tinged ; that which filled the tunica vaginalis was certainly shed from the vessels on the inside of that sacculus, upon removing the pressure of the water : the means used for a cure confirms this opinion, for the only application which was made was made to that tunic, and as the spermatic vessels could not be supposed to be concerned in the production of the

K 3                      disease,

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disease, no notice was taken of them in  
the cure.

The 15th case was I dare say the same  
in nature, but luckily gave way to such  
means as were used for its dissipation; had  
it not done so, it must have been treated in  
the same manner as the former, tho' the  
circumstances of the patient's habit were  
by no means favourable for such an ope-  
ration.

#### C A S E XVI.

**A** Man about 47 years old, of a fallow  
complexion, and subject to cholicky  
complaints, had the water drawn off from  
a hydrocele of the tunica vaginalis, by  
means of a small trochar; the quantity  
was near a wine pint, and the scrotum was  
perfectly emptied.

The next morning it appeared to contain  
a fluid, though in no great quantity; he  
showed it to his surgeon, who imagined it  
might be water, and advised him to take a  
brisk purge and put on a bag-truss: in  
three days it was so manifestly increased as  
to make the patient very uneasy, and de-  
sirous of farther advice.

On

On the 6th day from the puncture I saw him, and found the scrotum so enlarged that I should suppose the tunica vaginalis to contain six or seven ounces; it was plainly a fluid which distended it, but did not appear to me to be water; I suspected it to be blood, and advised a discutient application, and the free use of the bark; but these not agreeing with the humor either of patient or surgeon, he did neither, but took three or four brisk water purges, and used a warm fomentation. At the end of a month I was desired to see him again, when I found the tumor much larger, and his strength not a little impaired by his purging. The scrotum was now so much on the stretch as to be painful, and was so great hindrance to him in his business, as to determine him to have it let out again.

I told him that it was now of such size, and contained so much, that I did verily believe he would get rid of it by no other means; but at the same time advised him to be prepared for the necessity of laying it open, in case the contents should be blood, and the hæmorrhage continue after the bag had been emptied.

The opening was made by a lancet, with a view to the operation if it should be found necessary, the discharge was clear fluid blood, but our patient would not suffer any thing more to be done than merely drawing it off : he was dressed with a pledget and plaster, and tied on his truss again with a small bag.

He bled all that night and part of the next day, and when I saw him again could not have lost less than a pint.

I was thoroughly apprehensive what might be the consequence of an operation in such a habit, but still it seemed to me the unicum remedium, for medicine he would take none.

The bleeding continued another day, and then he submitted to have it laid open.

The division discovered no one bleeding vessel, nor did I imagine it would, being myself thoroughly satisfied that it came from the internal surface of the vaginal coat ; he was dressed with dry lint, and put to bed with an opiate.

All that day and the succeeding night a bloody discharge came in large quantities through the dressings, the lint adhered firmly

firmly to the edges, the lips of the wound had no tumor, nor signs of inflammation, but were soft and flabby; I told him my opinion and pressed his taking the bark, or having more advice; he would do neither, and only repeated his opiate, which by sweating him profusely did him rather harm than good.

On the third day from the operation, the bloody discharge still continuing in great quantity, his pulse failing a little, and being now sick and faint, he began to be alarmed, and suffered me to direct for him what I thought proper.

I ordered him a draught with a dram of the cortex, half a dram of confect. cardiaca, and three or four drops of tinct. thebaic. every four hours.

Not to make the account tedious by a minute relation of little circumstances, I shall only add, that he persisted in this course near four days before the bleeding *intirely* ceased, and then the lips of the incision first inflamed and afterwards suppurated, and by continuing the same method, he (not without much difficulty) got well.

## C A S E XVII.

**A** Man about 30 years old, of a pale complexion, but according to his own account in good health, had a hydrocele of the tunica vaginalis.

It was not remarkably large in diameter, but was much longer from above downward than any which I had ever seen; it had never been emptied, and the scrotum was remarkably tense and stretched.

It was extremely troublesome to him in his business, which was that of a taylor, and he was desirous of getting a perfect cure; to which I must own I then saw no reasonable objection. As he had lived in his usual manner without any regard to the operation, I deferred it for a few days, and in the mean time took away some blood from him, and gave him a cooling purge or two.

In the operation the vaginal coat appeared to be prodigiously stretched, its inside very ruddy, and the whole of it much thickened, for which reason I removed a small portion of its sides.

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Immediately after the operation he took a grain of extract thebaic, and had orders to repeat it at the distance of six or eight hours if his pain was great, or he got no rest; this proved unnecessary, for he felt little pain after he got to bed, and slept for two hours or more.

The next morning he was very well, no heat, nor even that degree of febrile acceleration of pulse which might be expected and which generally attends on this incision, and he passed the whole day as well, but early on the third morning I had notice sent me that he bled.

When I came to him I found that a considerable quantity of bloody fluid had oused through the dressings into the bed, but seemed now stopt; and as the removal of the lint from membranous parts so recently divided, is in general very painful, I did not then meddle with it, but ordered the nurse to keep a constant gentle pressure on the part with her hand, and to let me know if it bled any more. The man was rather low than otherwise, tho' his pulse was now quicker than it had been, and he complained of an anxiety and languor, that made him very uneasy.

I ordered him two ounces of the mixture of the sal. absynth. cum succ. limon. every six hours, with half a dram of the confect. cardiac. in it, and to drink some wine whey.

In the afternoon I was again sent for, the bleeding was returned, and dropt fast through the bag-truss; I immediately removed the dressings as gently as I could, and when I had made the part all clean, it appeared plainly that the hæmorrhage proceeded from no one vessel, but from all the divided parts, particularly the cellular membrane.

Some of the blood was caught in a bason and set by till it was cold; it was of a dirty brown colour, and though it thickened somewhat, yet it would not coagulate. The scrotum instead of having that tumor and inflammatory hardness usual upon such operation, was quite flaccid and soft, he complained of no pain in the part, but of a dull disagreeable kind of uneasiness, and weight of that side of his belly.

The wound was dressed with a soft digestive, to which a little hot ol. tereb. was added, and the pultice was made of one half of the cataplasma e cymino, and the  
other

other half strong beer and oatmeal; a glyster was given immediately in consideration of his not having had a stool for two days past, and as soon as it came away, he was ordered to take a dram of the cortex, in a draught with some tinct. rad. serpentar. and to repeat it every four hours.

All the succeeding night the bloody gleeting continued, and the pain in his belly, but still no heat, no acceleration of pulse, nor any febrile symptom of any kind.

The glyster brought away so small a quantity of hard fæces, that I thought it necessary the next morning to repeat it, on account of the increasing uneasiness on the side of his belly, and the general fulness and tightness of all the parts below the navel.

On the fifth day he was much in the the same state with regard to the parts, no inflammation, no tension, but a general flabbiness, and the discharge large and bloody; his belly rather tighter and fuller, a cold moist skin, a quick small pulse, a general anxiety and restlessness, and a very small stool from his last glyster.

Considering the tightness of his belly, and the small discharge which he had per anum, it appeared to me that whatever else might be necessary afterwards, a stool or two were absolutely so now, and therefore ordered a proper dose of the extract cathart. to be taken in some pepper-mint water, by means of which he had two large fœtid stools, which lessened the tightness of the abdomen and gave him some general relief; but all the appearances upon the part remained the same, and the discharge of bloody gleet as large as ever.

His bark draughts were now made warmer by the addition of some confect. cardiac. and spir. volat. aromat. which he took every three hours, but notwithstanding this, on the evening of the sixth day that part of the scrotum which covered the testicle on the other side, became black and was plainly mortified, and the next day the incision put on the same appearance.

Fomentation, pultice, proper dressings, &c. were used, but without any alteration for the better; on the eighth day his pulse began to falter, his face grew flushed, his mouth and fauces excessive dry, he complained

plained of a burning heat within him, while all the external parts were perfectly cold ; toward evening he rambled in his discourse, had a frequent hiccough, and early on the ninth morning died.

All the scrotum was black and truly in a state of mortification, but neither of the testicles at all altered ; all the tunica communis investing the spermatic vessels was diseased, altered in colour, and excessively distended with air, as well as all the cellular membrane quite up to the kidney on the diseased side ; the intestines also were much inflated ; on the colon were three large sphacelated spots, and several small ones on the ilium.

#### C A S E XVIII.

A Labouring man who had fallen down in the street with a load on his back was brought into St. Bartholomew's hospital, upon a suspicion of a rupture, he having a large swelling in his groin and scrotum, consequent immediately on his fall.

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The tumor seemed to occupy the whole spermatic process, which was so enlarged by it, that its passage from the abdomen through the tendon could not be distinctly felt, but the testicle below was very clear.

The appearance of the tumor, the suddenness of its formation, the distinct situation of the testicle below, and the accidental circumstance of the man's not having had a stool for three days before, inclined Mr. Freke, whose patient he became, to treat it as a rupture of the intestine, and after some few fruitless attempts toward a reduction, he determined upon the operation immediately.

He divided the skin and membrana adiposa, down to what he said was the hernial sac; and when he had so done he had a mind to endeavour at the reduction of the intestine without opening the sac.

Mr. Freke was a man not easily dissuaded from doing what he had a mind to do, and having got this experiment into his head, he was determined to make it now; accordingly with his probe-scissars he divided the tendinous opening of the abdominal muscle, and then again tried to return the  
piece

piece of gut; all his trials proved ineffectual, and at last, though with much reluctance, he was obliged to lay open the containing membrane.

He had no sooner done this, than a large quantity of blood partly grumous, partly fluid, burst forth, and the whole tumor subsided, leaving the process perfectly free, and a full proof that it did not contain any portion of intestine.

The parts were washed clean, and search made for the vessel whence this blood issued, but no breach could be found; as there was no hæmorrhage at that time nothing more was done, the man was dressed with dry lint and some powdered bole, and with common care got very well, without any further hæmorrhage or trouble.

In this case some of the circumstances rendered an intestinal hernia suspicious, and the want of stools might have passed for a kind of confirmation; but tho' this is one symptom of the strangulation of a portion of gut, yet it is by no means an infallible one, a want of discharge by stool may happen from other causes, even in a person having a rupture, but is no reason for the

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operation

operation unless it is caused absolutely by the rupture, and when that is the case, it is generally pointed out by some additional symptoms proceeding from such retention, such as pain, hiccough, vomiting, fever, &c. A costive habit may attend a person who has an intestinal rupture, where the gut labours under no stricture and executes its office though in the scrotum, but such person will never have the same symptoms as he who suffers a strangulation of the intestine by the tendinous opening of the abdominal muscle.

The patient in the present case had no symptoms which indicated a confinement of the gut, his not having had a stool was merely accidental, and he might undoubtedly have been spared the worst part of his operation, if Mr. Freke would have tried the effect of a glyster or a purge.

The whim of returning the gut in the case of a rupture without opening the sac, though it has the authority of a French writer or two, is too absurd to require any thing to be said about it.

C A S E XIX.

A Young fellow straining to get rid of a very hard stool, felt a sudden pain in his left groin, and upon examination found a swelling extending from thence into the scrotum.

He took it for a rupture, and immediately applied to an advertising operator, who after several unsuccessful attempts to reduce it, put him on a truss, and told him it would shrink away in a little time.

This truss he wore for some days, when finding his pain and swelling both increase, he applied to a surgeon in his own neighbourhood, with whom I saw him.

The swelling was large and had the feel of an omental rupture, the abdominal aperture seemed to be dilated by it, and the testicle was tolerably distinct below; his pain in an erect posture was great, but in a supine one very little; he had neither heat nor quickness of pulse, nor hiccough, nor vomiting, and had three stools on the day I saw him.

As there was no reason for suspecting a stricture on the intestinal canal, I advised

bleeding him freely, and to try whether keeping in bed, and applying a warm relaxing pultice, would not take off a part of the symptoms, which I took to be in some measure produced by the injudicious wearing of his truss.

This method was tried for several days, but without any beneficial alteration; on the contrary, the pain was greater, the swelling larger, and the fluctuation of the fluid more palpable.

This fluid I thought might possibly be collected in the sac of an omental hernia, (a case which I had more than once seen) increased by the pressure of the truss above, and as there was plainly enough in quantity to render a puncture perfectly safe, we made one with a lancet, and let out some ounces of clear blood.

When the swelling was thereby a good deal lessened, we felt for the spermatic vessels, but could feel them very indistinctly, the process still seemed much enlarged and loaded.

Next day we found the man perfectly well in health, but the scrotum swelled, and very black as if it had been much bruised, and he had also bled a considerable  
quantity

quantity from the orifice, which was not at all united, and upon the least pressure made above, the bleeding increased.

Neither of us were at all satisfied about the true nature of the case, but both clear that if the hæmorrhage continued, the part must be laid open to restrain it.

For three or four days it continued, and at last was so considerable as to determine us to the operation immediately.

A probe-pointed knife was introduced into the orifice which had been made by the lancet, and a pretty free incision made therewith; but no sacculus or particular cavity discovered, nothing at all like a hernial sac or a tunica vaginalis testis: upon washing it clean and examining it still more carefully, we were perfectly satisfied that it was only the tunica communis of the spermatic vessels, and that the blood must proceed from some of the latter.

The hæmorrhage still continued, and plainly from a part which was higher than our incision; we divided the skin up to the groin, and found that all the cellular membrane of the process was loaded with extravasated blood; that the flux came from a part of it which was now in view, and

which all impediments being removed by our incision was so plentiful as to leave little hopes of stopping it without castration.

However we dressed it up with lint, pressed out from a styptic, and intended to have left it till the next day, but were soon sent for, as the bleeding became more profuse, and the patient had swooned thro' faintness.

Castration was now the unicum remedium, it was performed immediately, the bleeding thereby stopt, and the man did very well: the testicle with its tunica vaginalis were perfect and unhurt.

## C A S E XX.

A Middle aged man came to St. Bartholomew's Hospital and desired me to look at a considerable swelling in the groin and upper part of the scrotum, on the right side, which he said came suddenly by lifting a heavy weight.

From the groin quite down to the testicle the spermatic process was loaded and enlarged, but I could not tell with what; he had no symptom of a rupture, and the  
testicle

testicle was much too free and distinct for an hydrocele of the vaginal coat.

While I was examining it I perceived some blood drop from an orifice in the lower part of it, and upon enquiring into the reason, the man told me that a little while before he had had a puncture made in it with a lancet, for two or three days after which it had bled frequently, but that since the bleeding was stopt, his swelling was returned.

From this and from some other circumstances I concluded the tumor to be from blood lodged in the cellular membrane of the spermatic chord, and remembering what trouble I had experienced in the preceding case, I persuaded him to permit me to lay the whole of it open, from the orifice made by the lancet quite up to the groin, taking care not to hurt the spermatic vessels, which were indeed sufficiently guarded by the quantity of grumous blood in the cells of the membrane.

When I had made all clear I endeavoured to find the breach, but could not, and as it did not seem to bleed at this time, I dressed it with some lint pressed out from spt. vin. suspended the scrotum in a bag truss, and

directed the nurse to keep a moderate pressure with her hand upon the process; some blood was drawn from his arm, an opiate was given to incline him to rest, and he was ordered to be kept extremely quiet.

The hæmorrhage never returned, the dressings were never removed till the supuration cast them off; and in due time the man got perfectly well, without any trouble at all.

To the different kinds of hydrocele already mentioned, some of the modern French writers have added another, viz. a collection of fluid in the sac of a true hernia.

It is quite unnecessary to take up the reader's time with an account of the manner of its production, as its title clearly defines it; I shall therefore only relate the following cases which came within my own knowledge.

#### C A S E XXI.

**A** Young fellow about 25 years old, applied to me on account of a swelling of his scrotum.

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It was large, and of an irregular figure; not very tense, but perfectly indolent, and accompanied with a remarkable fulness of the spermatic process.

The account he gave of himself was, that he had had a rupture as long as he could remember, that he had on that account worn a steel truss for many years; that upon taking off his truss his rupture always came down immediately, and was very easily returned up again; that it never had occasioned any obstruction in his stools, or given him any pain; that about a year ago he had been persuaded to leave off his truss, and to put on a bandage made of dimoty, without any iron in it, which was buckled very tight; that when he had worn this bandage about five or six months he found that his rupture was down, and that he could not get it up again; that upon this he applied to the person of whom he had the bandage, who tried to reduce the rupture ineffectually, then telling him it would never do him any harm, sold him another bandage, and buckled it on still tighter than the first; and that from the time he had worn this second bandage his  
scrotum

scrotum had been gradually swelling with much pain and uneasiness.

From the feel of all the lower part I made no doubt that there was a fluid in it, and had there been no other circumstance to influence my judgment, I should have supposed it to have been an hydrocele of the tunica vaginalis; but the man's very distinct account of what had preceded, and the appearance and feel of the upper part of the process made me doubt whether it was a simple hydrocele, or a hydrocele combined with a hernia, or merely water in the sac of an old omental rupture.

But whatever might be the true nature of the case, a fluid there certainly was, and that in quantity sufficient to make a puncture into the middle and anterior part of the tumor very safe; accordingly I made one, and let out above a pint of a brown serum; this discharge removed all the swelling of the scrotum, but made little or no alteration in the look or feel of the process. I endeavoured to reduce it, but found it impracticable, and therefore desisted, advising the man to let it alone, to wear no bandage of any kind, and if at any future

future time it should become troublesome, desired him to let me see it.

At the end of about a year he came to me again with his scrotum as much distended as before, and plainly containing a fluid.

As I had felt the testicle very perfectly after the discharge of the water the first time, and as there was no reason to believe that the tumor in the process was intestinal, I advised him to have it laid open, and by that means to get a cure.

After a little consideration he submitted; I made an incision from the middle and anterior part of the scrotum, quite up to the groin, and found in the lower part of the bag which had contained the fluid, the testicle covered only by its tunica albuginea or proper coat; and in the upper part a considerable portion of omentum: the superior part of this was hardened in its texture, and so perfectly adherent to every part of the passage from the bag into the abdomen, as absolutely to preclude the return even of a fluid, but below it was in its natural state loose, soft, and capable of being expanded.

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All the lower or loose part I cut off without making any ligature, or being troubled with any hæmorrhage ; the upper part I left as I found it, then filled the incision with dry lint, and treated it as if it had been the operation for the radical cure of the hydrocele of the vaginal coat.

In about seven weeks the man was perfectly well, and has never had any fresh collection of fluid, nor any return of his rupture.

This was truly a hydrocele of the tunica vaginalis, at the same time that it was a collection of fluid in a hernial sac ; for the rupture being of the congenial kind, the sac and vaginal tunic were really the same.

## C A S E XXII.

**W**HILE these papers were in the press, Mr. Spray desired me to visit a patient with him, who had some of the symptoms of a strangulated intestinal hernia.

It was a young man about 22 years old, who gave the following account of himself :

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That as long as ever he could remember he had been subject to a rupture, which never came lower than his groin, was always easily put up with his hand, and never given him any trouble; that he had when a child worn a truss, but whether from its being ill made, and from his not knowing how to put it on, it never answered the purpose, and he had disused it for several years; that for a month or two past, it had been constantly down, and he could not as heretofore return it; that still as it gave him no pain, and was attended with no other inconvenience than a swelling of the scrotum, he took no notice of it, nor applied to any body for assistance, until within the last three days, when he had been affected with great pain in his belly, a stoppage of stools, and a vomiting.

The scrotum was much enlarged, bore the appearance of a true hydrocele, and plainly contained a considerable quantity of fluid; but the upper part of the spermatic process was hard, large, very painful, and seemed to be girt tight by the opening in the tendon of the abdominal muscle, which, added to the extream tightness of his belly, his want of stools for three days past, his

anxiety, restlessness, vomiting, and beginning hiccough, determined me to propose the operation immediately,

The lad consented, and I made an incision as usual, from the upper part of the tumor just above the abdominal opening, quite down to the bottom of the scrotum.

Having carefully divided the cutis and common membrane, I came to what appeared to be the hernial sac; this I carefully opened, and thereby let out about half a pint of clear limpid water, upon which the whole tumor of the scrotum immediately subsided, and my assistants were satisfied that I had mistaken an hydrocele for a hernia.

But though the whole swelling of the scrotum was intirely dissipated by the discharge of the fluid, yet the tumor and hardness about the abdominal opening was unaltered, and the patient's pain exactly the same.

With a probe-pointed knife I laid the whole sac whence the water had proceeded open through its whole length, and found the testicle naked within it, that is, covered only by its tunica albuginea, or proper coats; this still gave the disease more the appearance

appearance of a hydrocele, and I began to think so myself, when passing my finger upward to examine the state of the opening in the abdominal tendon, I found a small piece of intestine engaged in it and bound very tight; I lengthened my incision so as to have a fair view of it, and be thoroughly satisfied of the true state of the case.

The piece of intestine was small, a good deal darkened in its colour, and bound so tight by the tendon, that it was with the utmost difficulty, and with great pain to the patient, that I could get the end of my finger within it, in order to introduce the probe-pointed knife for its division. When I had accomplished this, and made such dilatation as to be able to pass my finger into the abdomen with great ease, I endeavoured to return the piece of gut, but tho' there was no obstruction from the tendon, yet I could not return the intestine; I drew out some inches of it, thinking that I might thereby get it in the easier, and immediately reduced with the utmost ease all that I had drawn out, but still could not get in the small portion which made the original disease: at last upon passing my finger all round the inside

of the dilated opening in the tendon, I found that the intestine adhered to the lower border of it by a small membranous filament, this I divided, and the piece of intestine slipped in immediately without any farther trouble.

The man had stools in an hour or two, and by being properly taken care of very soon got well.

This also was a congenial hernia; the sac which contained the intestine, the fluid, and the testicle, was really the tunica vaginalis testis; but had I been content with the meer division of it, and the letting out the water, and not proceeded in an examination and division of the tendon, the man must have died of the stricture made on the gut.

## S E C T. IX.

**T**H E rest of the false Herniæ, as they are called, are the pneumatocele, the varicocele, the circoccele, and the farcoccele; to which some have added the hydrofarcoccele.

The first of these is, as I have already observed, an error, there is no hernia produced

duced by mere wind; the two diseases which in new-born children and infants are mistaken for wind-ruptures, are a quantity of water remaining in the tunica vaginalis of the testicle, after its communication with the belly is closed, (which is therefore a species of true hydrocele;) and the intestinal hernia.

The varicocele is a dilatation of the vessels of the scrotum. These are of different size in different people, and like the blood vessels in other parts, are liable to become varicous, but are seldom so much enlarged as to be troublesome, unless they are the consequence of some disorder of the testicle or spermatic chord: when this is the case, the original disease is what engages our attention, and not this simple effect of it: and therefore considered abstractedly, the varicocele is of little or no importance.

§ The circocoele is a varicous enlargement, and distention of the spermatic vein, and whether considered on account of the pain it sometimes occasions, or a wasting of the glandular part of the testicle

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which

§ The soft indolent enlargement of the epididymis, has by some writers been confounded with this disease.

which sometimes follows it, may truly be called a disease.

It is frequently mistaken for a descent of a small portion of omentum ; the uneasiness it produces is a dull kind of pain in the back, which is generally relieved by suspending the scrotum in a bag ; in books are to be found prescriptions for the lessening of the distended veins, but I never saw any effect from any external application whatever.

In general the testicle is perfectly unconcerned, and unaffected by it ; but sometimes it happens that it is attended with acute pain, requiring rest and evacuation, and after such symptoms have been removed, I have two or three times seen the testicle so wasted, as hardly to leave a vestige of its former state<sup>b</sup>.

### C A S E XXIII.

A Young fellow about 23, the son of a tradesman in the city, being on a journey, found himself one evening more than ordinarily tired ; and as soon as he had got to bed he was seized with a violent pain in his

<sup>b</sup> This has been observed by Mr. Sharpe also.

his back, which, to use his own words, shot down into his stone: it was so great as to oblige him to send for somebody to bleed him immediately, which was done but without any relief, nor was there any swelling or inflammation of the scrotum or testicle, or any other appearance whereby to account for it.

This pain continued without remission all the next day; he was again bled, had a glyster, and took a gentle purge.

On the third day toward evening the pain totally left him, and a fulness appeared in the groin tending down toward the testicle. This made him so uneasy, that finding the apothecary did not clearly know what it was, he got into a post-chaise and came home to London.

His journey brought on a small return of his pain and rather increased the swelling, but by losing more blood, being confined to his bed, and having an emollient pultice applied all over the parts with a bag-truss, in four or five days he became easy, and all the tumor dispersed, except a small degree of fulness of the spermatic chord, but the testicle was so diminished as  
hardly

hardly to be perceptible, and remains so to this time.

#### C A S E XXIV.

**A**N ostler in Smithfield was by the fall of his horse thrown over his head, and in falling struck his groin against the pommel of the saddle.

It gave him exquisite pain, and he was brought immediately to the hospital, upon a supposition that he had burst himself.

Upon examination no swelling appeared, either of the testicle or of the spermatic chord, but the pain which he said was exquisite, was confined to that part of the latter which is between the testicle and groin.

He was largely bled, had a glyster, and a gentle purge; his pain continued for two days and then left him, with the spermatic vessels remarkably varicous: I did all that I could for his relief but to no purpose, and when he left the hospital, that testicle was not a fourth part so large as the other.

I once also saw the same effect from the injudicious application of a truss on a true circoccele; the vessels became by the pressure

sure enlarged to a prodigious size, and the testicle shrunk to almost nothing.

## S E C T. X.

### *The* SARCOCELE.

**T**HE sarcocoele is a disease of the body of the testicle, and as the term implies consists in such an alteration made in the structure of it, as produces a resemblance to a hard fleshy substance, instead of that fine soft vascular one of which it is composed when in a sound healthy state.

If this is a just definition of the disease, and every such kind of alteration made in the testicle, from whatever cause it proceeds may therefore be called a species of sarcocoele, the term must then be considered as a general one, under which several very different disorders may be comprehended, viz. 1. That induration which sometimes follows inflammatory defluxions on the testicle, and remains long after the inflammation is gone off. 2. The same kind of enlargement from external violence. 3. That hardness and tumor of the whole body of it which is sometimes a symptom of the  
lues

lues venerea. 4. The simple, equal, indolent schirrus. And 5. The unequal, painful one, or the cancer, each of which, if the appellation is to be drawn only from the alteration made in the figure and consistence of the parts, may be called a kind of farcocele; but in the surgeon's limited sense of the word, it generally means one of the two latter.

<sup>k</sup> The antients made many distinctions of this disease, according to the different kind of humour which they supposed gave rise to it; but experience and a more improved physiology have shewn us the falsehood of these doctrines, and convinced us that they are all much too nearly related in general, that they differ only *secundum magis et minus*, and that they are very frequently convertible into each other.

The original cause of this, as well as of many other diseases is, and perhaps will always

<sup>k</sup> *Humores crassi sunt duo, pituita et melancholia e quibus tum schirrho in aliis partibus, tum indurationes carneæ in testiculis oriuntur.*

<sup>l</sup> *Tumor hic est durus, tactui renitens, indolens, et si exquisitus fit schirrhos sensu caret.*

*Si a melancholia oriatur color sublividus, si a pituita colorem cutis non mutat, si a melancholia super assata dolor punctorius et inæqualis tumor, hic durus, ibi mollis.*

*Fab. ab Aquapendente.*

always remain out of the reach of our knowledge, nor is it of much importance whether we ever arrive at it or not; if we do but carefully and accurately observe the different symptoms and appearances which in general attend the different effects produced by different methods of treatment, we shall do all that is necessary or useful; for though hypothesis and conjecture may serve to amuse the imagination, it is experience only which can inform the understanding, the former may make a man entertaining to a few, the latter will render him useful to multitudes.

Every species of sarcocoele consists primarily in an enlargement, induration and obstruction of the vascular part of the testicle; but this alteration is in different people attended with such variety of circumstances, as to produce several different appearances, and occasion many of those distinctions which have passed for different diseases.

Sometimes the body of the testicle tho' indurated and enlarged to some degree, yet preserves a perfect equality of surface, and is so little troublesome, that the patient finds no inconvenience except from the weight.

— This

— This is by some called the simple, indolent schirrhus.

Sometimes the very first appearance of enlargement is attended with pain, and the testicle feels as hard as marble, but still is equal and smooth, and does not seem to have any fluid within it; sometimes it is rough and unequal from the first, is tender to the touch, and frequently subject to acute pains, darting up the spermatic process into the loins and back: these are two states of what is called the malignant schirrhus, or occult cancer.

Sometimes the fury of the disease brooks no restraint, but bursting through the membranes both of the testicle and scrotum, thrusts out a horrid, stinking, painful fungus, attended with large gleet and frequent hæmorrhage; or else forms a deep, foul, fœtid ulcer, subject to the same discharges: this is the true cancerous testicle.

Sometimes a considerable quantity of water is collected in the cavity of the vaginal coat of the diseased testis, and produces that mixed appearance which writers have called Hydro-Sarcocoele.

Sometimes there is no fluid in the vaginal coat, but a collection is formed in the body

of the schirrhous itself, broke into cells containing a quantity of sanious, putrid matter.

Sometimes the spermatic chord or process is perfectly clear from all appearance of disease, is soft, small, and free from all unnatural adhesion or connexion, and sometimes it is greatly enlarged, hardened, connected with the neighbouring parts, and truly in a morbid state.

Sometimes the disorder seems to be local or confined to the testicle and its vessels only, at least there are no general symptoms which indicate the habit to be concerned, as in the case of some schirrhous in consequence of external violence; in others the pallid leaden countenance, frequent nausea, acute pains in the bowels, obstinate costiveness, or purgings, bear ample testimony that the whole habit is diseased.

The progress which it makes is also very various as to time, and very uncertain, being sometimes slow and gradual, sometimes rapid; sometimes it will remain as it were at a stand for a great length of time, and never at all affect the spermatic chord; in others it soon seizes the process, having in a short time spoiled the testicle.

These

These and several other circumstances, are materially necessary to be observed, as they characterise the disease, point out its particular nature and disposition, and serve as *criteria* whereon to found our prognostic concerning the most probable events, and the best method of attempting its relief.

To this as well as to several other diseases, for want of a more diligent enquiry into the real and true nature of it, and a more accurate examination of the state of the parts concerned, many different origins have been assigned, all equally groundless; but the two which the greatest part of practitioners and writers have most generally attributed it to, are the hernia humoralis, and the hydrocele.

The hernia humoralis is a defluxion of the inflammatory kind, is generally sudden, attended with great pain, heat, tenderness, and most frequently fever; during its state of inflammation, it enlarges the whole compages of the testicle, but when by rest, evacuations, and proper applications that inflammation is removed, there is very seldom either fulness, hardness or any other appearance of disease left in the glandular part of it; the epididymis indeed  
seldom

seldom escapes so well, that often remains enlarged and indurated for a considerable space of time, but without being the occasion of any pain or inconvenience, and without producing any alteration in the body of the testicle: whereas the true farcocele or hernia carnosæ generally begins in the vascular part of the testicle, and affects the epididymis only secondarily, or after it has considerably altered and spoiled the figure and texture of the former.

I would not be understood to mean that a schirrhous testicle never is the consequence of a hernia humoralis, or that a true farcocele never begins in the epididymis; I think I have seen both, but the cases are rare.

There is also a venereal affection of the testicle independent of a gonorrhœa, or of any disease of the urethra, which consists in an equal enlargement and induration of the whole body of it, as well as of the epididymis.

This may be called the venereal farcocele; it is very hard, but has not the stony hardness of the indolent schirrhous, nor the inequality or darting pains of the malignant; it is generally perfectly indolent

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when not handled, and gives the patient little more trouble than that constant pain in the back which the weight of it occasions : there is in this case seldom any fluid in the tunica vaginalis, and it most frequently happens that there are other concomitant symptoms which characterise the disease, and point out the proper method of cure ; nor did I ever see an instance of this symptom, (when truly and simply venereal) withstanding a proper mercurial course, but particularly the mercurial ointment rubbed in to the spermatic process and testicle for a proper length of time.

The quantity of water which is sometimes found in the vaginal coat of schirrhous testicles, has been the occasion of its being thought that such a state of that gland is often caused by its being surrounded with such fluid ; a conjecture which a heedless examination of the parts seems to justify, but which is undoubtedly false.

A schirrhous testicle has sometimes a considerable quantity of water in its tunica vaginalis, but a simple hydrocele will never produce a diseased testicle ; if any choose to call the former a species of hydrocele they may, but then they should be very careful

to distinguish them from each other, one being an original disease, the other an accidental symptom only of a complaint, whose seat, symptoms, proper treatment, and consequences, are very different.

The true simple hydrocele is, as I have already at large observed, an accumulation of a fluid in the tunica vaginalis; which fluid in a natural and healthy state of these parts, is taken up by proper absorbent vessels, and conveyed by the lymphatics into the receptaculum chyli, but by not being so absorbed is collected in, and distends the cavity of the bag, always leaving the testicle sound, and unaltered, either in form or consistence.

When the testicle becomes enlarged in size and hardened in texture, without any previous inflammation, or without having received any external violence, such alteration is called by the general name *schirrus*. This, as I have already remarked, is of different kinds or degrees, and makes very different appearances according to its state and kind.

Such diseased alteration in the parts sometimes proves a hindrance to the absorption of the fluid exhaled from the arteries into the cavity of the tunica vaginalis,

and produces that disorder which is by Fabritius ab Aquapendente, and others, called the hydro-sarcocele, but which tho' alike in some of its appearances to the simple hydrocele, is yet attended with so different a state of the parts concerned, and requires so different treatment, that particular care should be taken to distinguish one from the other, lest the inexperienced practitioner be led into a mistake detrimental to his patient's ease and his own character, by having promised relief from that which often proves to be none at all, and which is sometimes attended with still worse consequences.

In the true simple hydrocele, as the testicle preserves its natural size the quantity of fluid soon becomes large enough to conceal it from the touch, and the collection is made without any pain or uneasiness; but the increased size and hard state of a scirrhus testicle renders it very easily distinguishable, through even a much larger quantity of fluid than will totally conceal the former: besides which, it is not often perfectly indolent. In the simple hydrocele, the fluid distends the tunica vaginalis so equally, that though it really does not,  
yet

yet it seems absolutely to surround the testicle, whereas in the case of a schirrhous, though the anterior part of the tumor may wear the appearance of a hydrocele, yet the true state of the enlarged testicle is always perceptible in the hinder<sup>1</sup>. In the simple, the vaginal coat is always, and invariably loose, and free from all attachment to the albuginea, except at the posterior part where they make one continuous membrane; whereas in the hydro-sarcocoele the water is often collected into two or three different cavities, formed by unnatural attachments of the vaginal tunic to the albuginea, by which means the fluctuation is sometimes less palpable. In the hydrocele the spermatic process is perfectly free and

N 3

small,

<sup>1</sup> This has been very judiciously remarked by Le Dran. Schenkus also gives an account of a beginning sarcocoele taken for a hydrocele, cured by castration. Upon dividing the body of the *diseased* testis a quantity of matter was discharged, a thing by no means uncommon, but which in this instance was mistaken for semen. The patient died not long after the wound was healed, and the kidney and parts about made a very morbid appearance: this was by Schenkus attributed to the too hasty cure of the supposed hydrocele, but was indeed only another effect of the same virus, which had first produced the diseased testicle, neither was the fluid found within the body of it semen, as was most absurdly supposed, but sanies or matter; a circumstance very frequently attending schirrhous testes.

small, the blood vessels and vas deferens very distinguishable, and no pain is produced by handling; this is also sometimes the case of the hydro-sarcocoele, but very often not; and I never saw an instance in which the weight of these two different cases felt in the palm of the hand was not very distinguishable, the latter being always considerably heavier than the former. Perhaps there are some other characteristics by which they may be discriminated, which I do not just now recollect, but in this as in some other parts of surgery, there is a *tactus eruditus*, which can only be obtained by attentive practice, and which no verbal description can furnish.

Beside the hydro-sarcocoele or limpid extravasation in the tunica vaginalis, and which is therefore always exterior to the testicle, schirrhous and cancerous testes are often subject to collections of fluid within the body of them; sometimes in one large cavity, sometimes in several smaller ones, of very different nature in different cases, being watry, purulent, sanious or bloody<sup>m</sup>.

It

<sup>m</sup> Job a Meek'ren has made a very true and judicious remark regarding this subject; Fabritius ab Aquapendente has reckoned

It now and then happens that this internal collection is combined with that of the vaginal coat, in which case it is seldom known until the testicle has been removed and divided. Sometimes the tunica vaginalis and testicle, instead of being kept separate by a fluid, are united firmly together and make one body; in this case if there is an internal extravasation in any quantity, the fluctuation will be very perceptible, and a person who has not seen much of these kind of things may be led to imagine that a discharge by means of an opening may procure a subsidence of the tumor and ease to the patient, the very reverse of which is most frequently the consequence; the quantity of matter seldom bears any proportion to the size of the tumor, nor does it therefore lessen it immediately in

N 4

any

reckoned a collection of fluid within the tunica albuginea testis, among the kinds of hydrocele which Meek'ren does not allow as an hydrocele; but having described the true hydrocele of the vaginal tunic, speaks of this as it really is, viz. a consequence of a diseased state of the testicle; his words are, "Hieronym. Fab. ab Aquapendente part. I. de operat. chirurg. cap. 75. Aquam in testibus congregari docet eam quæ ex imo ventre eo defluit; at error est meo judicio magni anatomici, spatio enim eo quod *est inter testiculum* et tunicam imo in scroto ipso aqua sæpius colligitur, nunquam in *testibus ipsis nisi putrescant.*

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any degree equal to the expectation of the unexperienced operator : I say immediately, because in general these schirrhi are so ~~very~~ capable of irritation, that in a few hours after such incision they are considerably larger than when it was made, attended with horrid pain, and not infrequently they thrust out a fungus, which by its bleeding, gleeing, and exquisite tenderness, renders the state of the patient much worse than it was before.

Neither is the fluctuation of matter in the body of this kind of diseased testicle always to be depended upon ; the touch is here subject to great fallacy ; a loose, unconnected, glairy kind of substance, often produces this deception : an opening in such case being made little or no discharge follows it, all the symptoms of pain and inflammation are exasperated, the patient is disappointed, and the operator disgraced.

Many of the writers in this part of surgery, either not being practitioners, or lazily copying each other, have fallen into a strange obscure kind of jargon concerning this disease ; and talk of the schirrhus, the caro adnata ad spermatica vasa, the caro adnata ad testem, and the cancer, as so many

many different diseases, requiring different methods of treatment.

The fleshy substance adhering to the spermatic vessels is said to be more *bénign* than that which is found upon the testicle, and to be capable of being removed without injuring either the spermatic vessels or the testis : for this purpose they describe an operation most horridly coarse and painful, but which I hope and believe, they very seldom practised <sup>n</sup>.

The

<sup>n</sup> Ramex hæc inter excrescentias enumerari potest cum sit additamentum ex toto præternaturale, nec illi insunt signa apostematis, sed tantum est caro quæ circa scrotum aut epididymum generari solet.

Andreas a Cruce.

Curatio ejus est ut incidatur cutis testiculorum et excoriatur usque ad superiora, deinde extrahe didymum et testiculum, et libera eos ab omni parte ex illa carnositate.

Brunus.

Fit etiam hernia quandoque ex carnositate quadam præter naturam nascente juxta testiculum, et tunc pellicula incisa undique debet excoriari, et disco operta carnositate illa, a corio exteriori usque superius cauterio abscindatur, &c.

Rolandus.

Cura ejus non potest fieri nisi cum manu pellem exteriorem scindendo, et carnem a testiculis scarnando et incarnatum auferendo.

Lanfranc.

Scinde pellem testiculi cum rasorio usque ad testiculum, et tunc carnositatem quam invenis removeas et excarnes totaliter a testiculo.

Gul. e Saliceto.

Notandum est in hac operatione num caro concreverit circa tunicas an circa ipsos testes, numque firmiter an minus firme adhæret partis substantiæ.

The extirpation of the caro adnata ad testem is allowed even by themselves to be very seldom capable of being attempted with any probability of success°.

They who form their opinion from books principally, will be inclined to think that all these distinctions really exist, and that the operations by knives and cauteries so exactly described, must be sometimes necessary, but never having seen the particular cases requiring or admitting such treatment,

*Incidendum est totum scrotum usque ad carnem concretam, quæ siquidem valenter haud sit affixa vel summis digitis vel manubriolo scalpente a teste vel tunicis sensim est auferenda.*

*Fab. ab Aquapend.*

Caro item sæpissime testiculis et eorum tunicis adnascitur, serofus enim humor iste nonnunquam acris factus venas capillares membranasque leviter erodit; hinc pars illa sanguinis quæ paulatim exsudat, quæque optima et laudabilis est beneficio caloris innati in carneam substantiam concrefcit, &c. reliquum vero sanguinis quod serofum est paulatim membranas totumque scrotum adeo extendit ut caro ista quæ testiculo adhæret digitis palpari non possit. *Hildanus.*

Aliquando concrefcit caro circa vasa seminaria aliquando circa testes. Si circa testem concrefcit tunc est dolor et punctura cancerosa, et est additamentum carnis cancerosæ. Si autem non sit dolorosa caro, nec pungens poterit curari, &c.

*Secandum est scrotum et detegenda caro et a teste deradenda, vel a vasis, &c.*

*Fallopious.*

° In the fungous excrescence upon the testis when the same is not overgrown, you are to make way thereto, which is then to be consumed by escharotics, or by the actual cautery.

*Dr. Turner.*

treatment, have but a very imperfect Idea of the nature either of the case or of the operation. To such it may not be amiss to endeavour in few words to set this matter in a clearer light, and to render it rather more intelligible.

In the short anatomical description of these parts, I took notice that the spermatic vessels terminate in the testicle, and that after the semen has been secreted from the blood, it passes from that gland into a body, which seems superadded to, tho' really continuous with it; this body is called the epididymis, and is so placed with regard to the testis, that a heedless or uninformed observer may easily suppose that the spermatic vessels terminate in it, more especially if it is enlarged by disease.

It takes its rise from the testicle by a number of vessels, called from their office *vasa efferentia*, these soon become one tube, which being convoluted and contorted in a most wonderful manner, forms the greatest part of the said body, and at last ceasing to be twisted, ends in one straight, firm canal called the *vas deferens*, by which the semen is conveyed to the *vesiculæ seminales*.

Whoever

Whoever will attentively consider the epididymis in its natural position with regard to the testicle and spermatic vessels, will see, that if it should be enlarged beyond its natural size, it will so extend itself upward, as to seem to be closely connected with them, and by that means bear the appearance of a diseased body springing from them. This is undoubtedly one of the cases if not the particular one called by the name of the *caro adnata ad vasa spermatica*, and is really and truly nothing more than an enlargement, and perhaps an induration of the epididymis; a circumstance which frequently happens, but does not imply any degree of malignity either in the habit or in the part, and never requires such a horrid operation as some of our forefathers have directed us to perform upon it.

The epididymis is frequently enlarged in venereal cases, either separately, as in the remaining fulness after a common *hernia humoralis*, or together, with the testicle in that disease, which I have taken the liberty to call the venereal *sarcocoele*; but in neither of these can it ever require extirpation or any other manual operation.

The

The schirrhous and cancer never, or hardly ever begin in this part; they almost always attack the body of the testicle first, and tho' the epididymis is often found cancerous, yet it becomes so secondarily, or after the testicle has been in such state some time, so that the removal of it, if practicable, could serve no good purpose: it would not remove the disease, for that has beforehand taken possession of the whole testis, and the cutting off only a part of a cancerous tumor of any kind, is what no man who has the least knowledge of what he is about will ever think of<sup>p</sup>.

In short these two cases, which by the inattention and misrepresentation of writers have created such perplexity to many readers, are nothing more than either a simple indolent induration and swelling of the epididymis, or a cancerous state of the testicle, attended with greater or lesser degree of inequality of surface; the former of which requires no manual operation of any kind, and the latter will admit of none.

The

<sup>p</sup> Ambrose Parey has very well remarked, "That if any man thinks that in such case he may somewhat ease the patient by cutting away some portion of this soft flesh, he is deceived; for a fungus will grow if the least portion of it be left, being an evil far worse than the former.

The manner of treating a true sarcocele, depends intirely on the particular nature and state of it; in some it will only admit of general palliative remedies, in others there is great probability of getting totally rid of the disease by the extirpation of the testicle: so that under the article of method of cure, all that is to be done is to point out as clearly and accurately as the case will permit, what states and situations of the disease or of the patient make the operation adviseable, and what circumstances in either render it improper to be attempted.

The majority both of writers and practitioners have allowed, that when the whole spermatic process is affected by the disease, that is, enlarged or indurated, the operation had better not be performed, as it proves most frequently unsuccessful, and generally hastens the patient's destruction<sup>a</sup>;

in

<sup>a</sup> The authority of M. Le Dran on this subject may possibly be sufficient to give a student a different idea from what I have endeavoured to convey, and to induce him to believe that there is little or no hazard in castrating, when the spermatic chord is diseased between the testicle and abdominal opening only; his words are, "Quand le cordon spermatique est devenu malade jusques dans le ventre il y a tout a craindre, parce que l'operation n'est gueres practicable,

in this they almost all agree ; but when they come to speak of those cases in which the spermatic chord is not at all affected or diseased, and consequently there is no objection to the operation arising from thence, they are by no means so clear, or so well agreed concerning the propriety or necessity of performing it.

Some have given it as their opinion, that while the testicle is perfectly indolent, it is better to let it quite alone, let all other circumstances be what they may : the reason which they give for this is, that altho' the

practicable, vû la difficulté ou meme le danger quil y a de faire la ligature du cordon beaucoup, plus haut que l'anneau du muscle oblique." These words seem to confine the hazard of operating on a diseased chord to the disease being extended beyond the aperture in the abdominal muscle, into the cavity of the belly ; but whoever has seen much of these cases knows, that though the hazard is greatly increased, and the failure of success almost certain in such case, yet the appearance of disease in any part of the chord is so far from being a matter of no importance, that it adds greatly to the danger, and if the operation be attempted in such circumstances, it should be under the most guarded prognostic.

There are undoubtedly instances of success in castrating when the chord has been in some part diseased, and these few instances render the attempt preferable to desperation ; but it should always be remembered, that the number of those who have failed greatly exceeds that of those who have done well, and either the patient or his friends should be apprised of the hazard.

the disease has plainly taken possession of the part, yet while it is in this indolent state, the constitution receives no damage, nor is the health of the patient impaired; whereas by removing the testicle, the same virus may seize on some other part of more consequence to life. This method of reasoning takes for granted, what appears to me to be not strictly and constantly true, viz. that this disease is never perfectly local, and that a schirrhous which at first is indolent and inoffensive, cannot in time produce any mischief to the general constitution.

Others advise to stay until it becomes painful, and manifestly increasing in size, or in other words begins to show a malignity of disposition which it did not show before: this necessarily supposes that a testicle which is beginning to alter from a quiet state to a painful malign one, is as fit for castration as it was before such alteration began; and that the hazard of the operation merely, is too great to render it an advisable thing, before such alteration in the part seems to make it necessary; neither of which will I believe upon mature deliberation be admitted: on the contrary,

trary, while a schirrhous testicle is perfectly free from pain, and does not increase in size, we have reason to hope that some of the parts out of sight are not affected with the same disease, more especially if the patient labours under no general symptoms: but when from being indolent it becomes uneasy, is attended with pains darting up the process into the back, and plainly shows a disposition to enlarge, when the patient complains of nausea and frequent cholic, &c. I am afraid that we cannot venture to pronounce so absolutely either concerning the parts within or the event of castration, even tho' the spermatic chord should shew no mark of disease; and with regard to the hazard of the mere operation, tho' no man will pretend to say that it is totally void of it, yet it is one of those which seldom miscarry, that is prove fatal, especially if done in time, and while the parts are free and in an apparently sound state.

I have seen several people remain perfectly well for years after the removal of schirrhous testicles while they were in a perfectly indolent state, and I have seen several miscarry who have staid till they  
O were

were urged by pain and a manifest increase of the tumor ; that is, in the latter the virus has fallen upon some other part (generally an internal one) and produced fatal mischief, or the same disposition of blood has produced a cancerous sore or a cancerous fungus in the groin.

I will not pretend to say that the same has not happened after the extirpation of a testicle circumstanced in the best manner, I certainly have seen it more than once, but not near so often as when the operation has been deferred till the symptoms were become more troublesome. Indeed were we capable of knowing with any tolerable degree of certainty which were those schirrhi that would remain inoffensive through life, or for a great length of time, and which would not, we should then be able to dissuade, or advise the operation on much better grounds than we can now venture to do ; but we have no such degree of knowledge : all our judgment is formed upon experience merely, and that in these kind of cases is more fallacious than in many others.

Upon

Upon the whole, though there are a few people so happy as to carry schirrhous testicles

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cles

\* Schirrhous and indolent cancerous tumors are found in many parts of the body as well as the testicle, and in all others as well as in that bear different characters, that is, show a greater or less disposition to malignity, remaining sometimes of small size and easy for many years, and sometimes increasing fast, and producing excruciating pain with all its necessary consequences.

Of all the species of this kind of disease, those which follow upon some external violence being offered to the part, such as blow, bruise, &c. are thought and said to be the best, therefore great regard has always been paid to this distinction by writers, and great hopes conceived from this circumstance by the generality of those affected: I wish I could say that such hopes were as well founded as they are thought to be, I mean that experience always vindicated them.

The disease seizing a part which has previously sustained an injury from without is a very favourable circumstance, but it does by no means necessarily follow from thence, that the constitution is certainly free from taint; it is a presumption but not a proof; and this presumption becomes more reasonable if the diseased state of the part follows soon, than if it appears at a great distance of time from the accident. No man will pretend to say that such mischief has not been done by outward violence, that cancerous disorders have not followed in the part so injured, in persons who before such accident never had any appearance of this disorder, and who, very possibly, might have lived many years, or even their whole life, without showing it in such manner or under such form; but that previous to such mischief there certainly was no cancerous malignity in the habit, is an inference which cannot be admitted.

What disorders of the joints do we not sometimes see produced by very slight injuries done to them? disorders which

cles through many years of their life, without pain or trouble, yet the number of those

which are clearly and plainly scrophulous, and which would not have appeared at that time or in that part, had it not been for such accident; but surely no man will from thence conclude, that the patient had no scrophulous taint in his blood previous to such strain, bruise, &c. How many internal parts are there for this disease as well as some others to make its attack upon, but which by being out of sight and not objects of surgery are not known, and pass either for other diseases, or the symptoms of other diseases? what tumors of the lumbar glands and mesentery, what obstructions in all parts of the contents both of the abdomen and thorax, do we not find upon examining the dead, whose disorders were very little understood while the patients were living, but whose prevailing indisposition, whose natural dyscrasia, would have most probably shewn itself in some more visible part, if such part had suffered considerably from external violence?

All that we from experience know, and therefore ought honestly to say upon this occasion is, that it has very often happened, that when that kind of disorder which produces schirrhous and cancerous tumors has been brought into action by external injury, (whether in the breast, testicle, or whatever part, it matters not) or, having seized such part without any preceding violence being offered to it, and occasioned a fixed but indolent kind of swelling, which either remained a long time of one size, or if it did increase, increased very slowly, and gave the patient but little uneasiness, if such tumor has been so situated that it could safely be extirpated, or the part rendered diseased by it could be totally removed, such removal or extirpation has very often cured the present evil, and the patient has remained apparently free from any thing of like sort during the rest of his or her life.

This

those in whom time, change of constitution, accidental external injury, &c. do

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not

This is true, and therefore may very safely be asserted; this is and ever will be a sufficient reason for pressing such operation, when all the other circumstances are favourable; the keeping well after it being by no means impossible, and the chance of the schirrhous always remaining in its indolent, inoffensive state, being very improbable.

But whoever boldly says that such extirpation will always and certainly cure the disease, is very unexperienced, or is wilfully guilty of a deception; the two distinguishing characteristics of a quack, who always promises what he either does not know or does not believe.

When a schirrhous or cancer is favourably circumstanced, and conveniently situated, extirpation is indeed the only remedy, and that method by which such extirpation can be most safely, certainly, and expeditiously executed, is beyond all doubt the best.

The two in use are the knife and caustic, the former in the hand of a surgeon, who is an anatomist, has every advantage that can be supposed or desired; it gives less pain, is more secure, and more expeditious, but impresses on the patient the apprehension of an operation, and the terror of an hæmorrhage.

The use of caustics is infinitely more painful because it is of longer duration, and often requires repetition; it is less manageable, and consequently less secure, and the great length of time which the separation of the parts generally requires, renders this method very tedious. But it is attended with two circumstances which have greatly contributed to the support of cancer-quackery; one is, that it spares the patient the horror of an operation, which tho' infinitely less painful than the effect of the caustic, is not believed to be so, especially by timorous people; the other is, that the ragged appearance which the bottom and sides of the part make after having been removed by such application

not make such an alteration in this disease as to render the removal of it less likely to

tion is so unlike to the smoothness of that which has been cut out, that ignorant people are easily induced to believe, what the designing tell them, viz. that the medicine has taken out their disease by the roots, and that the ragged parts which they see are such roots.

It is amazing what weight this single circumstance has with many, and even with some sensible people, few of whom can be persuaded to believe what is as true as any proposition in Euclid, viz. that a caustic of equal strength applied on any glandular part of any person, will always produce exactly the same effect and appearance as what in this case passes for the roots of the disease.

When nurses and empirics talk of the fibrous-like roots of a cancer, and of cancerous fermentations, it is excusable; the ignorance of the one and the trade of the other make it so; but when they who pretend to some kind of medical knowledge use this sort of language, we cannot help blushing either for their ignorance or their dissimulation.

If either the situation of the part to be removed or the fears of the patient render the use of escharotics necessary or preferable, we are and have for ages been in possession of such as are full equal in force to any of those which have at any time been deemed specific, and most probably composed of the same materials; but it is in this as in the attempts toward the radical cure for ruptures, and in some other parts of surgery, we are censured where we ought to be applauded, and blamed for those very things from whence we ought to derive praise; we have disused certain methods and processes (tho' necessarily lucrative) because we found them upon experience to be painful, hazardous, and most frequently ineffectual, and these very methods, destructive and fallible as they are, have given credit and honour to those who have had ignorance and inhumanity enough to revive them. We are not yet so happy as to be possessed of any medicine which

to be attended with success than it would have been at first, is so small, that I think early castration when the disease is fairly formed and characterised, may be recommended and practised by every honest and judicious surgeon. Indeed the circumstances of frequent pain, and mani-

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fest

which will cure a cancerous habit, we do not pretend to it, when the constitution is infected neither our knives nor our caustics will avail, they can only remove or destroy the local mischief; but will not relieve the general one in the constitution. Whoever says otherwise, says what is not true, and whoever believes otherwise is imposed upon; when the habit is concerned, as it too frequently is, it must be an internal remedy that proves a specific, whenever we are so happy to be blessed with the discovery: the supposition that a specific escharotic which by destroying the part to which it is applied can remove the disease from the general habit, and prevent its seizing on another, is an absurdity, which one would suppose was too great even for the most credulous believer to swallow. All that our instruments or applications can do is, as I have already said, to extirpate the local mischief, their power goes no farther, but it sometimes happens that after such part has been cut off or destroyed, a favourable turn in a constitution, the arrival of puberty, the removal of long obstructed evacuations, especially uterine ones, &c. shall restore the patient to a better state of health, and prevent any new appearance of the disease, at least for a time.

In this case, if the extirpation was made by an external application and not by an instrument, such application is thought to have wrought the cure, and has all the credit of doing what it really had no share in, considered as a specific, and what it never can do again, but in the like accidental circumstances.

fest increase of size, are by some looked upon as such marks of a malignant disposition in the habit, that they reckon them among the dissuatives from the operation, even tho' the spermatic vessels are free, and of a natural size. These gentlemen I think carry their fears and apprehensions much too far; pain and a quick increase of size are, as I just now observed, no favourable symptoms, they shew a disposition to mischief, but are not quite such positive proofs of a cancerous habit as to render all hopes from the removal of the diseased parts vain, there have been instances to the contrary, and tho' no honest man will pretend to promise success even in the most favourable of these cases, yet those which have not been quite so promising, even those in which the spermatic process has been plainly diseased, have succeeded often enough to make the chance of a cure by the operation, preferable to the certain misery which must attend the not submitting to it. In short, this is a part of surgery in which the words of Hippocrates "*Experientia fallax judicium difficile*" are so often verified, there is so much uncertainty with regard to the event, and so much depends upon

upon the constitution and habit of the patient after the part is removed, that tho' a practitioner is vindicable in pressing what he has most often seen to succeed, yet he must always take care to make such a prognostic as not to suffer by a failure of success; that is, he must not promise too much.

But if there is some difference among practitioners concerning the fitness of the operation in some of the persons and circumstances above mentioned, they are all perfectly agreed in its unfitness in some others, such are\* all those in whom the spermatic process is enlarged or indurated quite up to the belly; they whose fallow complexion, wan countenance, want of flesh, and frequent hectic fever, indicate a thoroughly bad or cachectic habit; they whose frequent  
cholic

\* Among some of the modern French writers will be found histories of cases in which castration has been performed upon a diseased spermatic chord even within the belly, and directions to divide the tendinous aperture of the abdominal muscle in order to trace and try the process within the cavity, but this operation must be placed among many others which make a figure in books only; or if ever they are performed, serve to prove the rashness and insensibility of the operator, much more than his humanity or his judgment.

The symptoms, and the event of the very cases which have been produced in its defence, are the strongest dissuaves from making the attempt.

cholic pains shew that the cancerous virus makes its attacks on some of the internal parts; they who have the misfortune to have schirrhous or cancerous tumors in other parts; and they whose habits are quite spoiled by intemperance and debauchery. In these, as success cannot reasonably be expected, no attempts should be made, unless at the patient's own request, after he has been made acquainted with the hazard, lest those means should be thereby brought into disgrace, which might be serviceable to others: where no good is to be expected, there is no authority for doing any thing; a reasonable prospect of success will vindicate even the boldest attempt, but without such prospect the most dexterous operation is but a more ingenious way of tormenting.

The operation of castration is so simple, and so well described in all the common modern books, that I will not take up the readers time with relating it, and shall only add a few of such cases as have fallen within mine own knowledge, and which I think may serve to illustrate what has already been said.

C A S E XXV.

**A** Young man about 24, shewed me a testicle which was considerably enlarged through its whole dimensions, and was plainly and clearly a schirrhous of the most benign kind : it was equal in its surface, perfectly indolent, and gave him no trouble but from its weight, the spermatic chord was perfectly free and of its natural size, and by supporting it with a bag-truss he had for some time avoided all inconveniences from it ; but for about a month past he found that it visibly increased and was rather uneasy.

The patient was young and healthy, the disease, though not attended with any malignant or alarming circumstances, yet fairly characterised as a schirrhous, and from its late increase not likely to stand still ; I therefore advised extirpation, to which after a few days consideration he consented, the operation was performed, and he has enjoyed a very good state of health without any complaint for some years since.

C A S E

## C A S E XXVI.

A Man about 40, the son of one of the sisters in St. Bartholomew's Hospital, came hither from North America for relief in the case of a schirrhous testicle, which was perfectly indolent, with a sound unaffected spermatic process, but large and very hard; it had been visibly increasing in size for a year past, though it gave him no great trouble while suspended; the pain in his back was great when he took off his bag-truss, nor could he prosecute his business without finding it at times very uneasy.

I made no scruple of advising him to have it removed, which he submitted to, soon got well, and has remained so ever since.

These two cases were of such kind as most frequently do well, and therefore tho' I could produce several of the same sort, I think it needless, since they would only tend to prove the same thing, viz. that when the habit is good, the disease apparently local, the schirrhous smooth and indolent,



hastily undertaking, or expecting or promising too much in the conduct of this very terrible, and very fallacious disease.

## C A S E XXVII.

**A** Man about 47 years old, who had for three or four years been troubled with a schirrhous testicle of the indolent kind but had refused the advice which had frequently been given him to part with it while the chord was free from disease, applied to me for advice ; his state was a very unpromising one, the testicle was large, unequal, very troublesome from its weight, and near one half of the spermatic process was much enlarged and considerably hardened ; he had all the appearances of bad health in general, and was not absolutely free from such disorder in his bowels as might most probably be attributed to the cancerous virus.

The gentleman whose patient he was, came with him to me, and gave me an account of what had been done for him for a year or two past.

The

The case was bad, there appeared no chance of relief but from castration, the state of the spermatic process rendered that chance very small, and yet the improbability of the disease remaining in its present state was so great, that even that small chance was worth embracing; his general health was certainly much impaired, and most probably from the cancerous virus, but neither would this be mended by time or medicine, while the local disease remained: in short having apprised him of all the circumstances, and acquainted him with the great uncertainty of the event, he chose to submit to the operation, which we performed the next day. The state of the process just admitted of making the ligature fairly above any diseased part, and I made it as high as I could.

No particular circumstances attended the cure, the sore healed in a very kindly manner, and the patient has since that time enjoyed a good state of health.

In this case the event was most fortunate, and by me most unexpected; in such circumstances the operation is seldom advisable because seldom successful, however

ever this may serve as one of a few instances to prove, that where there is even a small foundation for hope, the experiment of extirpation is preferable to desperation: the patient or his friends should not in such case be flattered or deceived, but the uncertainty of the event being previously made known to them, the operation may fairly and honestly be proposed and practised.

## C A S E XXVIII.

**A** Man about 50 years of age, in apparent good health, advised with me concerning a schirrhous testicle.

He said that he first perceived it about three years before, that it had never given him any pain till within the last six months, that since that he had had frequent pains darting up into his loins, and that it had increased more in the last seven or eight weeks than in all the rest of the time put together.

The spermatic process was perfectly unconcerned, free, and of its natural size, and except the pain and late increase of size there was no just objection to the operation

ration: I proposed it and he submitted to it.

At the end of about seven months he was seized with violent acute pains all about the region of his kidneys, attended with spasmodic cramps in the muscles of respiration, and all the symptoms of a peripneumony, which in about a fortnight killed him. Upon opening his body the glandula renalis was as big as a large Seville orange and truly schirrhous, and no other appearance of disease in either the thorax or abdomen.

#### C A S E XXIX.

**A** Young man about 24 years old desired my opinion concerning a testicle, which was beginning to enlarge, and was already become very hard.

The account he gave was as follows.—  
That about seven or eight months ago he had had a common hernia humoralis, in consequence of a gonorrhœa being suppressed by hard riding; that the inflammatory symptoms were soon removed by evacuation, rest, and proper applications, but that neither the testicle nor epididymis  
P had

had ever returned to their natural size: that the surgeon who had the care of him had, since the inflammation was gone off, given him a considerable quantity of mercurial medicine internally, and rubbed in a good deal of the ointment externally, so much as to have made his mouth at one time very sore; that he had also taken two or three mercurial vomits, but no alteration was thereby made either in the consistence or size of the testicle.

It was perfectly indolent even upon handling, and had a stony incompressible hardness, but the spermatic vessels were in a sound and natural state.

I told him that whatever might have given rise to it, I was well persuaded that it would never yield to medicine of any kind; that it was a true schirrhus; that though it was indolent and quiet now, no man would pretend to say how long it might remain so; and that I should by all means advise him to part with it while it was in its present state, rather than stay till there should be such an alteration in it, as might induce him to think of the operation when it might be too late.

To

To this he would not agree, and I saw no more of him for near four months ; at the end of which time he called upon me again, with the testicle considerably larger, but still indolent, and the spermatic process quite unaffected.

I repeated my former advice, and he again refused to comply with it.

In about two months more he came to me again ; the testicle was still larger, and between it and the tunica vaginalis a small quantity of fluid was very perceptible.

He said that he had showed it to two other surgeons, both of whom had promised him much relief, if not a cure from letting out the water, which they said was what made the swelling, but that he would not let it be done till he had spoke with me.

I told him that I had not the least doubt but that there was a fluid, but that I apprehended it to be much less in quantity than he, or they who had promised him a cure from letting it out, thought it was ; that it appeared to me to make so small a part of the tumor that the decrease of size upon making the puncture would bear no proportion to what he expected ; that this

water made no part of the original disease ; that an opening made into a testicle so circumstanced might excite some very troublesome symptoms which he had not at present ; and that if he could submit to have any thing at all done to it, I thought he had much better have it removed at once.

He again left me much dissatisfied, and rather angry, he thought me too tenacious of my own opinion, and too regardless of that of others ; but I had seen so many of these cases that I was in no doubt about what was right to be done, and I knew the people who had seen him too well, to suppose they would leave any thing unattempted while he believed, and payed : a bold promise of relief is almost sure of gaining credit from the distressed, let the improbability of performance be ever so great : he very soon applied to have the puncture made, by which a very small quantity of bloody serum was discharged, and the size of the testicle so little reduced thereby, that the operator would fain have persuaded him to have permitted a lancet to have been thrust into the body of it : this however he did not comply with.

Being

Being vexed at what had happened, and ashamed of the people he had trusted, I saw nothing of him for near two months; he then came to me again but in a very different plight from what I had ever before seen him in; his complexion was become unhealthy, he had lost flesh considerably, the tumor was larger and unequal, the spermatic chord diseased quite up to the groin, and from the time of making the puncture he had hardly ever been easy.

I was very sorry to be obliged to say that I could do him little or no good; that it was too late for the operation; and that he must have recourse to gentle evacuations, opiates, and other palliative remedies.

He now of course fell into the hands of those who only want a little ready money, and having tried two or three of them without success, he was advised to take the cicuta, which he did for a considerable time and in large doses; but here as in all the other cases in which I have seen it given, it did nothing at all towards a cure.

He was now truly in a most deplorable state, the testicle of an amazing size, the spermatic chord quite up to the groin so large as hardly to be grasped with the

hand, and a prodigious tumor within that side of his belly, his pain acute and constant, his flesh, appetite and strength quite gone.

In these circumstances some believer in the omnipotence of the sublimate solution put him into a course of it, which in one respect was of great use to him, for it soon put an end to a most miserable existence.

## C A S E XXX.

A Man about 50 years old, shewed me a large diseased testicle, which he said had been getting to that size near four years, and was produced as he thought by a kick of a young child.

The surgeon who attended his family, and who had often seen it, had frequently persuaded him to have it removed, but he would never think of it till urged by pain.

It was now large and unequally hard, had in some parts a quantity of fluid in the vaginal tunic, in others none; it was tender to the touch, gave him great uneasiness in his back from its weight, and even when  
suspended

suspended had frequent dartings up the process.

The spermatic chord was perfectly free, without the least fulness, but the frequency and acuteness of his pain, deprived him of his natural rest, and gave him an unhealthy appearance.

I told him that he had certainly missed the most favourable opportunity by not submitting to the operation while the testicle was in a state of indolence; and that some of his present circumstances were rather unlucky, but that as the spermatic chord was yet unaffected, and as the testicle was got into a painful and increasing state, and there was little probability that it would ever again become easy, or cease to enlarge, I thought it was better to take the chance of the operation, than run the risque of that certain misery which must attend the farther progress of the disease if the testicle was not removed.

The patient consented, the operation was performed, and every thing went on in a favourable manner, until the fore was reduced to the size of a sixpence; he was then seized with frequent cholic pains in his bowels, and the fore began to fret, look

foul, and spread : in about a fortnight's time it got to the size of the palm of a hand ; bled frequently, gleeted largely, was extremely offensive, and very painful, nothing that he took or did had any effect on it, and having lingered in a most miserable manner for several months he died.

## C A S E XXXI.

A Working man about 47, who had been in every hospital in London for an indolent schirrhous testicle, and in most of them had been advised to part with it, came into St. Bartholomew's.

The testicle which had till within the last month been smooth and even, was now become unequal and painful ; he had frequent pains in his bowels without stools, and a fallow complexion, which was plainly the effect of disease, but the spermatic chord was perfectly free and sound.

I told him that I thought he had missed the opportunity of having the testicle removed, and would have persuaded him not to think of it now, but he was so alarmed by the alteration, that he begg'd to take the chance of it at all events.

Nothing

Nothing which implied any latent mischief appeared during the cure, and at the end of about two months the man went out well.

In six months time he came to me again with a pallid face, a wasted habit, and a truly cancerous fungus of considerable size in his groin.

This was removed, and soon rose again, was very painful, bled, and gleeted as usual; his pains in his bowels were such and so frequent as to necessitate him to have recourse to opium, from which he obtained the usual temporary relief, but in less than a year he died.

C A S E XXXII.

A Man about 50 was brought into St. Bartholomew's Hospital for an accidental hurt, of which he soon got well, and when he was going to be discharged desired Mr. Freke who was his surgeon, to look at one of his testicles. It was large and unequally hard, gave him much pain at times, and seemed to contain a quantity of fluid in the body of it; the spermatic chord was pretty free just at its passage through

through the muscle, but for near half way between that point and the testicle was diseased and considerably enlarged.

Some of the gentlemen present expressed their apprehension that this state of the lower part of the process might render the operation unsuccessful, but Mr. Freke was of another opinion, and performed it immediately.

The vessels of all that part of the process which appeared diseased were knotty and varicous to a great degree, and the connecting membrane much thickened; the epididymis and testicle were quite confounded together, and in the body of the latter was a quantity of bloody sanies, contained in two or three large cells.

The man got no rest after the operation, the vessels of the cellular membrane bled through all the dressings, which were necessarily renewed two or three times on that account; in a few hours after castration he became very hot and feverish, and his pulse quick and hard.

The next day he bled again, not from the chord, or from any particular vessel, but from the whole divided dartos; the  
scrotum

scrotum was swelled and loaded but not much inflamed, his pulse was inconceivably rapid, he complained of acute pain in his back, a burning heat within, an intolerable thirst, and an anxiety that was terrible to him; toward night his pulse faltered, he became easy, and his extremities cold, and early next morning died.

Upon opening him all the cellular membrane which envelopes the spermatic vessels, and all that of the neighbouring parts was discoloured, as if it had been bruised, and all the cells distended as if they had been blown up designedly.

The same rapid destruction I saw in another man who underwent the operation in nearly the same state both of the spermatic process, and of general health, and I was informed that, upon opening him after death, the appearances were exactly similar to the preceding.

### C A S E XXXIII.

A Man about 30, of a full plethoric habit, had a tumor in the spermatic process, about its middle; it was hard, circum-

circumscribed, indolent when not meddled with, but painful a long time after being handled, and the pain of such kind as to indicate no very benign disposition in the tumor if it should accidentally be irritated; the testicle was perfectly free and unconcerned.

I advised him to lose some blood, and use other evacuations; to put on a suspensory bag, and thereby take off all weight from the process, and to let me see him again in ten days or a fortnight.

I did not see him again for near a month; he went from me to a rupture-doctor who put him on a truss and gave him an external application, bidding him come to him again in a week's time. The pressure of the bandage joined possibly to some irritating quality in the ointment, made the tumor become much larger and constantly painful; upon which his Doctor applied an adhesive plaster, and after he had worn that a few days, thrust a lancet into the body of the swelling: nothing but blood followed the instrument, he enlarged the opening, filled it with lint, and for several days following dressed it with præcipitate. The man finding himself grow hourly worse

worse came to me again, with as truly cancerous a fore as I ever saw, and the spermatic process above so diseased, that there was no opportunity of attempting the operation with the least probability of success; neither could we by any means palliate its fury after it had been so thoroughly irritated: for several months he suffered all the miseries which accompany such cases, and then died, having a large hard, diseased body within the belly extending from the groin quite up to the kidney on that side.

C A S E XXXIV.

A Man about 50 desired my advice about a diseased testicle, it was about the size of a small pomegranate, very hard, perfectly indolent, and the spermatic vessels and process unaffected by the disease. He told me that he only wanted to know whether he could be cured of it without castration, which he was determined not to submit to.

I gave him my opinion very freely concerning the great improbability of medicine of any kind producing any good effect on the schirrhous, and was not sorry that he  
had

had resolved not to submit to the operation, there being some circumstances in his general constitution which were very discouraging; he had a fallow, wan, diseased countenance, a general want of muscular flesh and firmness, and a very frequent cholick, attended sometimes with a diarrhœa that withstood all remedies, sometimes with an obstinate costiveness.

In the space of two or three years he took a great variety of medicines, and saw a great variety of people, physicians, surgeons, quacks, &c. but found no benefit, nor did the testicle suffer the least alteration, or the process ever become affected.

He died of a dysentery, and when he was opened his mesentery was found full of large hard schirrhous knots, all the lymphatic glands about the receptaculum chyli, and thoracic duct, remarkably diseased, and the liver considerably enlarged and hardened.

## C A S E XXXV.

**I** Was desired to visit a man whose testicle had been enlarged for near three years, but perfectly indolent, and without any affection of the process.

About

About a fortnight or three weeks before I saw him, the person who had the care of him fancied that he felt a fluctuation deep in the body of it, and taking it for matter, plunged a knife into it; no discharge followed the incision, but in a few days a most horrid fungus thrust itself out from it, attended with frequent pain, hæmorrhage, &c. and when I saw it the process was got into such a state, that nobody who knew what they were about, would attempt the operation.

This poor man did not long survive; the symptoms advanced with amazing rapidity, and in a very short time put an end to a most miserable being.

C A S E XXXVI.

A Man about 48 years old, who lived at some Distance from London, found one of his testicles become hard, larger in size than it used to be, and when on horse-back somewhat painful. Having been several times clapt, and twice been confined with a hernia humoralis, he thought this was of the same kind, and applied to the apothecary of the village where he lived,  
who

who not being much accustomed to surgery, and in some degree misled by the patient's own opinion and account, looked on it in the same light, and gave him several doses of calomel. These not succeeding to his wish, he confined the patient to his bed, applied a pultice to the scrotum, and gave him two or three vomits of the mercurius emeticus flavus.

By this process the man lost his appetite and flesh, became feverish and got little sleep, the testicle still growing larger and harder.

I was now consulted by letter, and gave it as my opinion that the case was not venereal; that all mercurial medicines, and every thing that was likely to increase the velocity of the circulation, were wrong, and would be found prejudicial; and that whatever the true nature of the disease might be, or whatever it might be necessary to do hereafter, the point to be aimed at now was to abate the fever, to keep the body gently open, and to get down what he could of the lightest and softest nutriment, and recommended the drinking of the decoct. sarsaparillæ, with a third part of milk for his common drink.

In



dition of some Burgundy pitch, a collection of matter was now produced, and plainly to be felt deep in the body of it; and I was now desired to give my opinion in what manner I would advise the letting it out.

I returned for answer, that it was not very agreeable to give a positive opinion on a case which one had never seen, and therefore desired that what I was going to say might not be misconstrued, or applied to any other case than what I took this to be: that if I was right in my conjecture, this was a schirrhus, which was becoming cancerous apace, and would in a very short time shew more of its malignant disposition; that the fluid which had been let out was nothing more than some of the water of the tunica vaginalis testis, whose absorption was prevented, and whose bloody colour was produced by the diseased state of the testicle itself; that I should hardly have advised the letting it out at all, much less while it was in that small quantity; that the fluid which was now felt to fluctuate deep in the body of the testicle was by no means the effect of of a kindly suppuration (as by the question proposed

posed concerning the manner of letting it out they seemed to think it); that I did verily believe they would find the quantity discharged bore little proportion to the size of the tumor, and consequently it would even at first be very little diminished by it; and that I did also apprehend, that, so far from producing an alleviation of the symptoms, it would aggravate them all, and render the disease still more painful and hazardous.

To this I received a short answer, acquainting me that it was apprehended I had mistaken the case; that they had also consulted another person in London, who from the account given of the freedom of the spermatic chord, of the preceding herniæ humorales, and probably from some misrepresentation of the appearances, had advised the making an opening by the knife, which had been done.

I heard no more about it for near another month, and then was sent for to an inn in this town, where I found the patient in a situation truly deplorable; the testicle was amazingly large, and one half of it covered by a prodigious fungus, which was intolerably painful, gleeted  
Q 2 largely,

largely, and at times bled profusely; the spermatic process was very large also, and a tumor plainly to be felt within the belly, caused by the diseased state of the femoral vessels within the cavity; the man's strength was exhausted, his flesh all gone, he had not the least appetite, and got no sleep; I told him I was sorry I could do him no service, and in about a week or ten days after his arrival in London, he died.

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**T**O the cases which I have produced relative to this disease, I might add some more of like sort, which I have either treated or seen; but am inclined to believe that those already related will be found sufficient to verify, as much as this very uncertain kind of malady will admit of verification, what I have advanced at the beginning of this section, viz. That when once the disease is fairly characterised, they have the best chance of permanent relief, or cure, who submit soonest to the extirpation of it; that tho' early castration does frequently rid the patient totally of his disease, yet it is not always to be depended upon, or promised; that the appearance

pearance of good general habit, and freedom from other bad symptoms, instead of being reasons for delaying the operation, are really the strongest arguments for proposing it; that a pallid countenance, lean habit, frequent cholic pains, &c. are reasons for being doubtful of success, but do not always and invariably portend the failure of it. That where there is from the state of the parts affected even a chance of removing the disease by extirpation, it is preferable to desperation, and to that degree of misery which most frequently attends the neglect of it; that on the other hand where the parts concerned are in such state as not to afford a probable prospect of success, an honest or a humane man will not think himself vindicated in making such an attempt as must necessarily add to the patient's misery without giving him any chance of relief.

And—That when the testicle is possessed by a true schirrhous or cancer, it ought to be clearly extirpated or not meddled with at all, I mean by way of operation.

